# ASSESSMENT OF THE IMPACT OF AN INTEGRATED DEVELOPMENT PROJECT

- a case study of a fisheries project on Lake Tanganyika -

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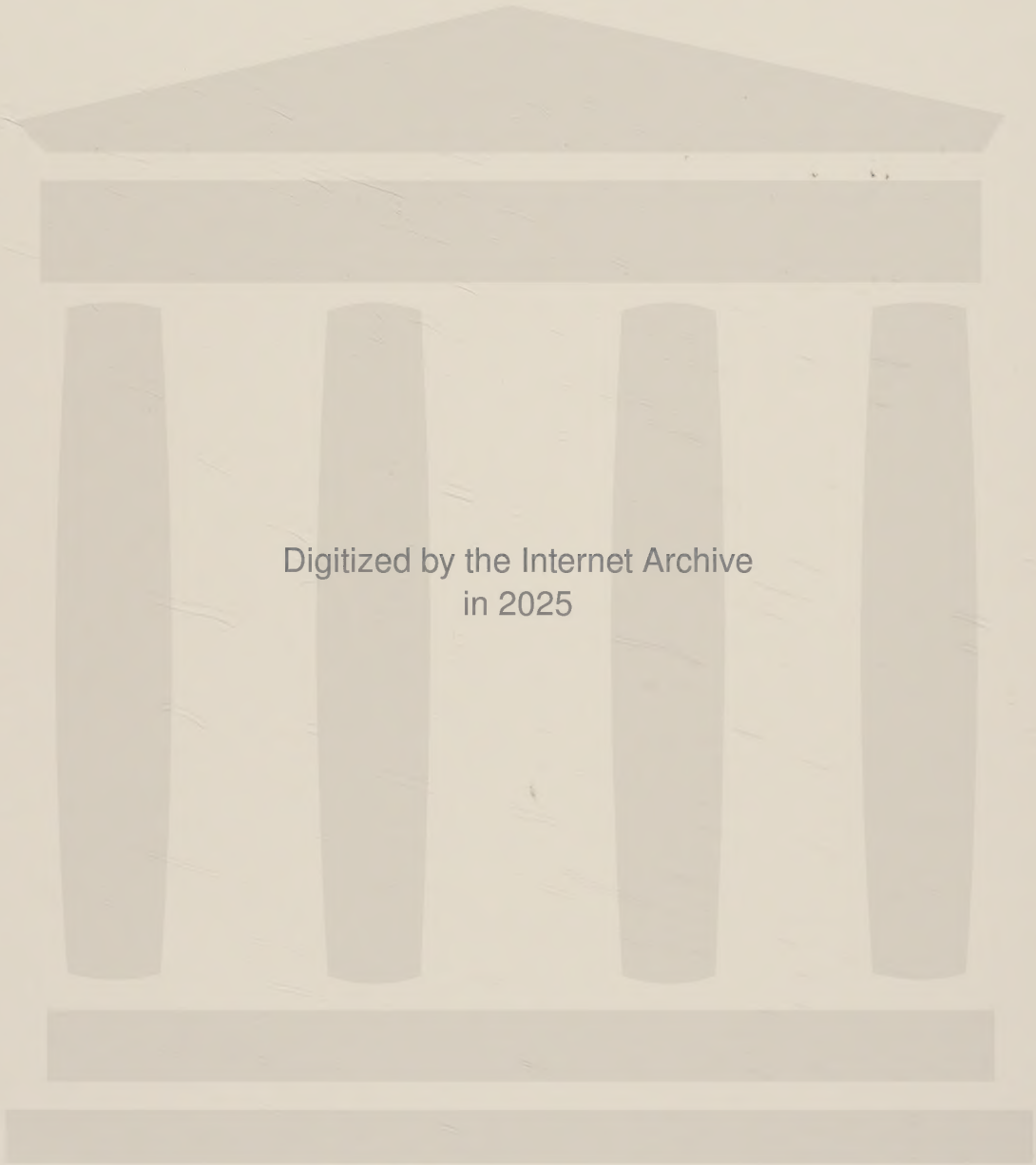

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# ASSESSMENT OF THE IMPACT OF AN INTEGRATED DEVELOPMENT PROJECT:

a case study of a fisheries project on Lake Tanganyika

by

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## PREPARATION OF THIS CIRCULAR

This document presents the outcomes of a project impact assessment undertaken in the framework of activities of the project "Integrated Technical Assistance and Credit for Artisanal Fishermen in Lake Tanganyika" (GCP/URT/066/NET). The first chapter provides an introduction to assessment of the impact of a project. It is hoped that the study presented in this document will provide the reader with a useful example for the design of other impact assessment studies of fisheries development project. The case study is therefore considered to be of general use and to ensure a wider distribution than would normally be the case for a project publication it is decided to have it published in this format.

The conclusions and recommendations given in this report are considered appropriate at the time of preparation. They may be modified in the light of further knowledge gained. Any correspondence related to this circular should be directed to: Mr Kees Leendertse, Fishery Development Planning Service, Fisheries Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy.

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## ABSTRACT

This document presents the results of the impact assessment of the project "Integrated Technical Assistance and Credit for Artisanal Fishermen in Lake Tanganyika", based in Kigoma Tanzania. The project was operational from January 1983 to September 1993 and it formed the continuation of earlier projects (FAO/UNDP, FAO/Netherlands) during which the emphasis gradually shifted from assistance in developing fishing methods and improved fish processing techniques to integrated development assistance and the provision of credit to the artisanal fisheries sector. Although the survey was utilized to garner data on a spectrum of practical issues, its principal aim was to assess the impact of the project's credit scheme and its related input supply and training activities on the situation in the project villages and their resident's lives. In addition to deductive analysis, the survey sought the views and ideas of the respondents in terms of assistance and benefits provided by the project and its efficiency. The document also provides a conceptual introduction to project impact assessment. Therefore, it is expected that the document will provide the reader with a useful example for the design and implementation of similar impact assessments of fisheries development projects.

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Figure 1: Map of Kigoma Region and project villages

## EXECUTIVE SUMMARY AND RECOMMENDATIONS

1. The study presented in this report aims to assess to what extent the project "Integrated Technical Assistance and Credit for Artisanal Fishermen in Lake Tanganyika" (GCP/URT/066/NET) has had an effect on the socio-economic situation of fisherfolk households and on the nutritional status and living conditions in the project villages.

2. A constraint to the conduct of the study has been the lack of reference data on project beneficiaries prior to receiving a loan from CRDB as compared to the status of non-beneficiaries. In the absence of such data, the study compares households which, together with other assistance, have received fishing inputs on credit from the project with a reference group of randomly selected non-recipient households in the project villages in terms of socio-economic and living conditions, including asset ownership, food and production issues and nutritional information and also assesses project performance and impact.

3. The unit of enquiry is a fisherfolk household defined as "a household in which one or more of its members is/are involved in fish production and/or fish processing and/or fish marketing and where these activities result in the generation of all or a substantial part of the household income".

4. The questionnaire used for the study was divided into parts. The first part was meant for the heads of households and generated information on population characteristics, living conditions, assets, decision making and division of labour in the household, as well as appreciation of the project. The second part was intended for women and provided information on demographic characteristics, nutrition, family planning, food issues and on the women's perceptions of decision making and assignment of household tasks. The last part consisted of a weight, height and vaccination record survey.

5. In terms of social and demographic characteristics, the two groups surveyed do not show significant differences. Occupations are for both groups fishing as primary and farming as secondary occupation. Recipients of project assistance are slightly better educated than non-recipients and ethnicity among recipients is slightly more balanced and in accordance with the distribution of ethnic groups in the region. Recipients are mostly found in the 30 to 50 age group (69 percent) whereas the non-recipients are more equally divided among the different age groups. In marital status, no significant differences have been observed but the number of wives per married male head of household is higher among the recipients of project assistance. There is little difference between the two groups in migratory behaviour.

6. The differences between the two groups are considerable with regard to the ownership of assets. Recipients of project credit and assistance do not only own quantitatively more but also qualitatively more sophisticated and expensive fishing assets, boats, and gear. It is obvious that the project beneficiaries acquired assets with loans from the project while non-recipients had to rely more frequently on personal savings. Also ownership of other productive assets shows a significant difference in favour of project beneficiaries; 41 percent of the recipient households have one or more non-fisheries productive asset whereas this percentage for the reference group is only twenty. The vast majority of both recipient and non-recipient households possess basic consumer articles but where luxury items are concerned, such as radio and cassette recorders and mosquito nets, recipient households own considerably more.

7. Farming is by far the major secondary source of income for all fishing households interviewed, while in terms of ownership or non-ownership of fields, there is no difference between households which benefitted from the project and households which did not benefit. With regard to acreage, however, the average for non-recipients was 5.9 and for non-recipients 5.1, and also the average annual production is higher for recipients, which allows them to sell more and still retain more food for home consumption. In livestock breeding, there are only minor differences. Additional income generated through the project has also been used for the acquisition of agricultural land.

8. Construction materials of houses may be considered as important indicators of the quality of housing. Generally, the houses of households which benefitted from the project are constructed with more durable and expensive materials, such as bricks, corrugated iron sheets and cement, compared to non-recipients' houses that are mostly made of wattle and mud walls, grass roofs and rammed earth for the floor. Additional income generated by the project had been used by the project beneficiaries to improve their houses. No significant differences were observed in terms of doors, windows and latrines.

9. Decision making patterns and assignment of tasks in the household in both men's and women's perceptions have been investigated. Generally, men are considered to be responsible for decision making for most of the identified topics but in households which participated in the project more decisions are made jointly between men and women. The stronger role of women in decision making can most likely be attributed to the project's activities for enhancing the economic and social roles of women. Some differences were observed between men's and women's perceptions where the purchase of small household items and furnishings are concerned. In the assignment of household tasks, only minor differences between the two groups and between men's and women's perceptions were observed.

10. Of all the women who were interviewed, about 30 percent indicated that food supply until the next harvest may not be sufficient and that income is needed to purchase additional food. Soil deterioration is a major factor which contributes to uncertainty of quantitative and qualitative food provision. The project has taken action to improve diets and to provide fruit and firewood trees for planting. To ensure a

balanced and enriched diet, it is recommended that a drastic educational soil conservation and tree planting programme is carried out in conjunction with fisheries development activities.

11. Between women living in households of project beneficiaries and women living in households which did not benefit from the project, no significant differences are found in age, religious affiliations, abortions and number of children borne alive. There are differences, however, regarding ethnic affiliations, educational status, use of family planning methods and fertility. Women of households which benefitted from the project more often use family planning methods than women from households which did not participant in the project. The difference in family planning practices has obviously been caused by the project's educational activities in this field.

12. There are no significant differences between children of households which participated in the project and children of households which did not participate with regard to gender, weaning age and breastfeeding. The nutritional status of children in households of project beneficiaries is only slightly better than in other households and both groups of children have been found to be malnourished. It is strongly recommended that the project makes special educational efforts to ensure that the additional income generated through the production related activities of input supply, training and credit is used for improving the nutritional status of children. The data collected on types of food and feeding schedules of non-breast fed children under four years of age indicate that quality and amount of food given to children has recently improved in households which participated in the project, mostly likely because of the educational and motivational activities of the women's groups.

13. The loan recipients' appreciation of the project performance in terms of assistance, benefits received and efficiency of project assistance have been assessed. Problems occurred when no full package of fishing inputs was received or when the time span between approval and receipt of the loan was too long. However, 59 percent of the respondents did not experience any difficulties. Additionally, recipients benefitted from the project through training and also through supply of fruit trees and rearing of rabbits. With regard to the credit programme, it is recommended that the Cooperative and Rural Development Bank (CRDB) tighten up their schedule for visiting loanees in their villages to avoid a drop in loan recovery percentages and subsequent further eroding of the value of the revolving fund after the end of the project.

14. Incomes of 88 percent of the respondents that received loans through project intervention have substantially increased. This additional income has mostly been spent on house construction/improvement, children's education, and re-investment in fishing. Forty-five percent of the recipients judged the project as very useful and 54 percent found its performance satisfactory. Only 1 percent thought the performance of the project was poor.

15. In view of the absence of reference data and because other factors may affect households with regard to ownership of assets, living conditions, marital status, etc., it has been recommended to conduct multi-variate analyses by cross tabulating population characteristics, such as ethnicity, religion, education, etc., with ownership of assets, living conditions and nutritional status to assess to what extent the differences between recipient and non-recipient households can be attributed to the project. However, the similarities of both groups with regard to the above variables would not lead to exclusive conclusions.

16. To assess the sustainability of the project's impact and to make use of the information now available, it is highly recommended to repeat the present survey at the end of 1995.

# 1. INTRODUCTION

## 1.1 Assessing the impact of a project

Following the World Conference on Agrarian Reform and Rural Development of 1979 and the World Conference on Fisheries Management and Development of 1984, the emphasis of fisheries development activities of national governments and of bi- and multi-lateral development agencies underwent important changes. While previously most projects aimed exclusively at achieving production increases supported by technology transfers and training, this approach has been complemented and partly substituted during the last decade by target-group oriented and integrated development programmes for fishing communities.

These programmes aim to generate employment and income and to improve the economic and social status of populations in rural areas, among other things, with a view to fighting poverty and to preventing mass migration to urban centres. They aim further to preserve the aquatic and coastal environment and to promote exploitation of aquatic resources in a sustainable manner.

Other objectives of integrated fisheries development programmes relate to improved access to infrastructure and services in the fields of communication, education, primary health care/sanitation, nutrition, child care, family planning, to higher educational, nutritional and health standards and sustainable fertility rates, and to improvements in women's economic and social roles.

A number of fisheries development programmes which commenced in the early and mid-eighties are presently coming to an end. Many of these programmes and projects did not start out as integrated fisheries development projects oriented towards specific target groups but went through two or more different phases involving revisions and reorientations of the original objectives of the project or programme.

While it is certainly of interest to know what impact integrated fishing community development projects actually had on the economic, social, health and nutritional status of their target groups as well as on the coastal environment, it is surprising that no attention has been paid to the design and implementation of impact studies, which in an analytically and statistically objective and representative way analyze and document project impact with reference to the particular target group of the project.

With few exceptions, integrated fisheries development projects have so far undergone traditional project evaluations, where two or more evaluators describe the achievement or non-achievement of a project's objectives in a rather subjective and descriptive way which in most cases is not appropriate for target group oriented development activities.

The following study is an example of how the overall impact of a target group oriented integrated fishing community development project can be assessed in a statistically representative and objective way.

Casley and Kumar, in a joint study of the World Bank, the International Fund of Agricultural Development and the Food and Agriculture Organization (1987, p.136 ff.), discuss three principal strategies for assessing the effects of specific project interventions.

The first strategy entails conducting a baseline household survey of pre-project conditions and then conducting further surveys to measure longitudinal changes in the incomes and living conditions of the target population during and after the project.

The authors observe that despite its obvious attractiveness this strategy is not practical in many cases. They highlight that for the establishment of statistically significant trends and for excluding the influence of other factors, measurements at many points in time are required which require the allocation of considerable staff and financial resources.

A number of theoretical and empirical difficulties are involved in measuring income changes and changes of standards of living in an objective way, the quality of data generated by such surveys being likely to be poorer than for example estimates of production. Casley and Kumar conclude that for these and other reasons, it is hardly surprising that one rarely finds an impact evaluation of an agricultural and rural development project that has successfully utilized income data from baseline and follow-up surveys.

In addition to the practical problems related to the use of baseline surveys for impact assessment studies which are mentioned by Casley and Kumar, there are other even more important disadvantages regarding the use of baseline survey data for project impact assessment.

The objectives and activities as well as the target group of participatory, integrated fisheries development projects are not static but undergo changes as the project is being implemented and its interaction with its human and natural environment develops. This is also the case with the project the impact of which is assessed in this paper, i.e. the Project for Integrated Technical Assistance and Credit for Artisanal Fisherfolk on Lake Tanganyika.

Furthermore, a baseline survey of specific households conducted prior to or at the very beginning of a project, might become obsolete in the light of the changes and project revisions which take place later on. Also, households which have been covered by a baseline survey will often have certain other characteristics than those households which later on actually interact with and benefit from the project.

While, for these and other reasons, baseline surveys in many cases do not generate the data against which the impact of a project can be objectively measured, they nevertheless provide useful initial information on the socio-economic and demographic characteristics of the target group and on the project area and environment without which it would be difficult, if not impossible, to design specific project interventions. Data and information generated by baseline surveys are also useful as reference data later on.

The second strategy for assessing the impact of a project discussed by Casley and Kumar is to conduct a single, cross-sectional household survey at the end of a project or a few years after its completion which asks objective and subjective questions about the

changes in respondents incomes and living standards. According to the authors, the objective questions can gather data for a comparison of the incomes and expenditures of project beneficiaries with other population groups. In addition, the respondents can be asked to evaluate change. Casley and Kumar conclude that a single household survey can provide valuable information on the effects of project interventions at a reasonable cost.

The third strategy for assessing the effects of project interventions described by Casley and Kumar is to seek the views of local experts, government officials and leaders through in-depth interviews or informal surveys. The authors admit that assessments might be biased and suggest that evaluators will have to draw their own conclusions after interviewing a cross-section of the key informants.

The impact assessment study presented in this paper follows the second strategy described above while views of key informants are considered in the interpretation of the data generated by the study. The group of households which interacted with and benefitted from the project are compared with a control group of households which has similar demographic, socio-economic, vocational and other characteristics considered relevant to the impact of the project and which did not participate in activities implemented by the project.

While no systematic, target oriented baseline study has been carried out at the beginning of the project, a socio- and techno-demographic sample survey was carried out in the project area during the second phase of the project (Leendertse/Horemans, 1991). The study presented in this paper makes reference to the socio- and techno-demographic sample survey wherever appropriate.

The project the impact of which is being assessed commenced in 1983 with the objective to increase the fish production in the northern part of the Tanzanian waters of Lake Tanganyika, mainly through the introduction and improvement of liftnet fishing with light attraction and of purse seining for a fish species with the local name "dagaa" and through the supply of fishing inputs on credit and provision of training in the operation of the fishing technology.

During its second and third phase, the project focused its input supply and credit operations on the poorer sections of the fishing communities and also paid attention to marketing and processing, institutional strengthening of the Cooperative and Rural Development Bank of Tanzania and of the regional fisheries administration, introduction of alternative income generating activities for women, improvement of the social and economic role of women, reforestation activities, family planning, nutrition and other activities meant to increase employment and income of fisherfolk and to improve their overall standard of living.

It is hoped that the impact assessment study presented in this document provides the reader with a useful example for the design of other impact assessment studies of fisheries development projects.

## 1.2 Project history

The Project for Integrated Technical Assistance and Credit for Artisanal Fishermen of Lake Tanganyika (GCP/URT/066/NET) based in Kigoma, Tanzania, was operational from January 1983 until September 1993 with a break of one year from March 1991 to March 1992. It formed the continuation of earlier projects (FAO/UNDP, FAO/Netherlands) during which the emphasis gradually shifted from assistance in developing fishing methods and improved fish processing techniques to integrated development assistance and the provision of credit to the artisanal fisheries sector. Against the estimated potential of approximately 130,000 tons/year of the Tanzanian Lake Tanganyika, the maximum yield was reached in the years 1973/74 when fish catches for twelve consecutive months reportedly totalled 50,000 tons. There was a considerable decline in fish production during the period 1975-80, the cause of which was identified as the lack of foreign exchange to procure replacement fishing gear, fuel and other essential services required to support the fishing fleet operations.

The project's preparatory phase included the identification of the immediate needs of the fishermen, importation of fishing gear, the establishment of a specially designed credit scheme operated by the Tanzanian Cooperative and Rural Development Bank (CRDB), and technical assistance in cooperation with the Department of Fisheries.

The long-term objective of the project was reversal of the declining fish production and the improvement of the standard of living of the fishing communities in the Kigoma region. The short-term objectives of the project were adapted and extended to include:

(a) The expansion of the existing fisheries credit scheme to reach, by the end of 1989, also the poorer section in the private artisanal sector and women.

(b) The improvement of fishing equipment and methods through introduction, at village level, of diesel-powered trimarans.

(c) The minimization of post-harvest losses by improvement of techniques employed in fish drying, smoking and storage.

(d) The training of counterpart staff to provide, by the end of 1989, adequate assistance to fisherfolk in the villages of maintenance and servicing of outboard engines and other related equipment, supported by a constant supply of spare parts.

(e) The continued availability beyond the end of 1989 of adequate technical and logistical support services provided by the appropriate Government bodies based in Kigoma.

In spite of difficult operational conditions, lack of communications and a poor transport system, the first and second phases of the project carried out most of the objectives and were considered to have achieved the main goal in the establishment of a need-oriented credit scheme shared by an increasing number of fishermen and women.

Recognizing that the role of women in development had been previously under-estimated, phases two and three of the project were reoriented to address women as a specific

target group. Women's participation in fisheries related activities has been actively stimulated and assisted and now covers practically all shore-based operations related to fish processing and marketing.

The expansion and consolidation of the credit scheme was an important achievement in the second phase. Besides an increase of the capital of the revolving fund by US $100,000, the corrective measures proposed by an FAO Credit Consultant in 1988 allowed the revolving fund to regain some of its purchasing power, lost due to inflation and devaluation of the Tanzania Shilling (from 42 Tsh. to 1 US$ in 1986 to 454 Tsh. to 1 US $ in 1993). The role played so far by the revolving fund operation towards the revival of the fishing operations cannot be over-emphasized, although its modest input has been sufficient to reach only a portion of the fisherfolk population, estimated at 8,000 persons, presently operating in the Kigoma region.

The project was evaluated in October 1989 by a joint Netherlands/FAO mission which also examined the need for a follow-up. The findings showed that, although the project had undoubtedly contributed towards development of the fisheries sector in the region, it had been unable to achieve some of its immediate objectives, particularly in relation to institution building and the strengthening of extension services in the fishing villages. The mission recommended an extension of two years during which particular attention was to be paid to strengthening of institutions and extension services.

In July 1990, a project formulation mission visited Kigoma and prepared the work plan and budget for a 18 months' final Phase III, which functioned from March 1992 to September 1993 and included the project impact study presented in this report.

## 1.3 The report

While the first chapter of the report gives a summary of the background and objectives of the study, the second chapter contains a description of the methodology used for the survey, including sampling method, data collection, processing and analysis.

The subsequent chapters present the findings of the study. The third chapter deals with characteristics of the population surveyed and compares households which benefitted from the project by receiving fishing inputs on credit together with technical advice and other assistance - referred to as recipient households - with non-recipient households in terms of occupation, education, ethnic and religious background, age structure, marital status, household size, and migratory behaviour. The fourth chapter assesses differences between the two groups in terms of assets, including fishing assets, farming, other productive assets, and non-productive assets. The fifth chapter describes housing conditions for recipient and non-recipient households. In the sixth chapter, information is presented on decision making and assignment of household tasks, not only in terms of differences between the two groups but also according to men's and women's perceptions. The seventh chapter elaborates on food and agricultural production. In the eighth chapter, the nutritional status of the child population and differences between recipients and non-recipients and references from WHO standards are presented. In the last chapter, the reception and appreciation of the project's

performance, lending procedures and efficiency by the beneficiaries (and where relevant also non-beneficiaries) are presented.

In the appendix, the reader will find a copy of the questionnaire that was designed for the purpose of this study.

# 2. METHODOLOGY

## 2.1 Selection of villages, households and stratification

The project area covers the coastal zone of the Kigoma region and extends from the Burundi border in the north to the Rukwa region in the south. A total of 29 fishing villages are situated along this stretch of coastline, twelve of which were assisted by the project, from the northern village of Kagunga to the remote village of Sibwesa. In these villages the project impact study was undertaken (see Figure 1).

Infrastructure in the region is poor and only three of the project villages can be reached by road while the remaining nine are only accessible by water transportation. The most densely populated areas are north of Kigoma and between the villages of Mwakizega and Sigunga. The most southern area around Mahale National Park (from Rukoma to Kahugulu) is the least populated and the most difficult to reach.

For the socio-economic sample survey jointly undertaken by GCP/URT/066/NET and the UNDP/FAO Regional Project for Inland Fisheries Planning (IFIP) in 1991, the area was divided into three sectors (strata). This stratification, evolving from different geographical and socio-economic characteristics in the project area, was divided into: Stratum I: north of Kigoma/Ujiji (including the project villages Kagunga, Zashe, Mwamgongo, Mtanga, Kigalye and Kibirizi); Stratum II: south of Kigoma/Ujiji (project villages Mwakizega, Karago, Sunuka and Kapalamsenga); and Stratum III: the most southern area, encompassing the coastal villages on the projecting node of land, a majority of which is Mahale National Park (project villages Nkonkwa and Sibwesa). These strata were used throughout the survey and, where considered relevant, were applied to the analysis of the data. When comparing the socio-economic sample survey with the impact assessment presented in this report, it should be noted that the strata are not equally represented in the numbers of villages and households selected for the impact assessment (see Table 2).

## 2.2 Sampling method

For analysis purposes, two groups of the same size were compared: the first group consists of the 143 fisherfolk households which received credit from the project as loanees between July 1989 and October 1991 (the third, fourth and fifth batches). The rational behind this selection is that the loans given at this time would neither be too far back nor too recent to have made a socio-economic impact. The reference group consists of 143 randomly selected fisherfolk households residing in the same twelve project villages as the recipient households which did not receive fishery inputs on credit from the project. The sample/population ratio for the reference group is 14 percent (estimated 1,310 fisherfolk households in the villages minus 298 which received loans, making 1,012 households; 143:1012 = 14 percent). For each of the twelve project villages, a list of households was compiled, differentiating between recipient fisherfolk households, non-recipient fisherfolk households, and other non-fisherfolk households. The sample size per village for the reference group was determined proportionally to the number of non-recipient fisherfolk households in the village (see Table 1).

After determining the sample size for the non-recipient fisherfolk households for each village, the actual sampling list was prepared. Based on a list of households in alphabetical order, the sampling interval for a particular village was calculated by dividing the number of non-recipient households by the sample size. During collection of the data, some difficulties were encountered in that there were occurrences of the originally selected sample households being absent. In this case, these households were replaced appropriately by others in order to arrive at the required 143 households. Table 2 presents the actual distribution of interviewed recipient and non-recipient households for each village and per stratum.

Table 1: **Sampling of survey population**

| Village | Village population in 1992 (1) | No. of households (2) | Fisherfolk households which received loan (3) | Fisherfolk households which did not receive loan (4) | Non-fisherfolk households (5) | Sample house-holds in (4) (6) | Households which received loans in 3rd, 4th & 5th batch |
|---|---|---|---|---|---|---|---|
| 1. Kagunga | 8 987 | 951 | 20 | 599 | 332 | 29 | 15 |
| 2. Zashe | 5 390 | 525 | 7 | 282 | 236 | 14 | 5 |
| 3. Mwamgongo | 5 150 | 634 | 14 | 410 | 210 | 20 | 11 |
| 4. Mtanga | 2 620 | 350 | 15 | 227 | 108 | 11 | 12 |
| 5. Kigalye | 3 813 | 475 | 24 | 306 | 145 | 15 | 19 |
| 6. Kibirizi | 4 524 | 460 | 7 | 274 | 179 | 13 | 5 |
| 7. Mwakizega | 6 338 | 971 | 14 | 240 | 717 | 12 | 19 |
| 8. Karago | 4 700 | 406 | 19 | 73 | 314 | 4 | 15 |
| 9. Sunuka | 5 612 | 410 | 15 | 94 | 301 | 5 | 12 |
| 10. Kapalamsenga | 2 130 | 405 | 27 | 72 | 306 | 4 | 21 |
| 11. Nkonkwa | 2 402 | 322 | 1 | 233 | 88 | 11 | 1 |
| 12. Sibwesa | 2 624 | 298 | 26 | 101 | 171 | 5 | 8 |
| TOTALS | 54 290 | 6 207 | 189 | 2 911 | 3 107 | 143 | 143 |

Table 2: **Interviewed households per village and stratum**

| Stratum | Village | Recipients | Non-recipients |
|---|---|---|---|
| I | 1. Kagunga | 17 | 28 |
| | 2. Zashe | 9 | 14 |
| | 3. Mwamgongo | 13 | 20 |
| | 4. Mtanga | 11 | 10 |
| | 5. Kigalye | 17 | 15 |
| | 6. Kibirizi | 11 | 14 |
| **Subtotal** | | **78** | **101** |
| II | 7. Mwakizega | 9 | 14 |
| | 8. Karago | 13 | 2 |
| | 9. Sunuka | 9 | 7 |
| | 10. Kapalamsenga | 12 | 4 |
| **Subtotal** | | **43** | **27** |
| III | 11. Nkonkwa | 1 | 11 |
| | 12. Sibwesa | 21 | 4 |
| **Subtotal** | | **22** | **15** |
| **TOTALS** | | **143** | **143** |

## 2.3 Survey design, data collection and processing

The survey instrument used for the study (see Appendix 1) consisted of three questionnaires. The first one was designed for the heads of households, male or female, and generated information on population characteristics, living conditions, assets, decision making, assignment of tasks in the household, and appreciation and evaluation of the project. The second questionnaire was intended for female household members over 15 years of age, and provided information on demographic characteristics, nutrition, family planning, food issues, and their perception of decision making and the assignment of household tasks, which were also investigated in the head of household questionnaire. The last questionnaire consisted of a weight, height and vaccination record form for all children in the household born after May 1990 (children between 3 and 36 months).

While the total number of the head of household questionnaires was fixed at 286 (143 recipients and 143 non-recipients), the number of questionnaires (for women and children) was not fixed but depended on the particulars in each individual household. Polygamy, extended families, age divisions, etc. resulted in variations in the number of women and/or children in the household. For the survey, a total of 373 women were interviewed and 251 children measured. This does not imply that there were only 373 women or 251 children in the 286 surveyed households, rather that there were 373 women and 251 children available at the time of the survey. It can therefore be assumed that the actual number would be higher, as there were instances where a household had no women interviewed because of personal business, family affairs, travel, etc.

The questionnaires were field tested and subsequently adapted before data collection. After collection, the information obtained was coded and entered in a database utilizing the software package dBase IV. For analysis, use was made of the statistical software packages Statgraphics, dBase III plus and IV, and Lotus 123. The outcome of the analysis are presented the following chapters of this report.

## 3. SOCIAL AND DEMOGRAPHIC CHARACTERISTICS

This chapter compares the two groups in terms of occupation, education, ethnic and religious background, age structure, marital status, household size, and migratory behaviour. The information was obtained from the head of the household questionnaire, of which the majority of respondents were men. For the women's questionnaire, the age distribution, ethnic and religious background and educational attainment were extracted to complement the information on population characteristics.

### 3.1 Occupation

The focus of enquiry being fisherfolk households, it was expected that fishing would be the major economic activity in the households. Table 3 shows the principal and secondary occupations of the heads of households.

Table 3: **Principal and secondary income generating occupations of heads of households by group surveyed (%)**

| | Principal | | Secondary | |
|---|---|---|---|---|
| | Recipients | Non-recipients | Recipients | Non-recipients |
| **Fisherman** | 92 | 97 | 5 | 1 |
| **Fish processor** | 3 | 1 | 3 | 3 |
| **Trader** | 0 | 0 | 10 | 1 |
| **Farmer** | 5 | 2 | 78 | 82 |
| **Other** | 0 | 1 | 3 | 5 |
| **None** | 0 | 0 | 1 | 7 |

A vast majority of both respondent groups have farming as a secondary occupation. Remarkable, however, are the low percentages of respondents in both groups which are involved in fishery related activities, such as processing and marketing as a secondary occupation. Recipients are more frequently involved in trading which includes fish trade than non-recipients. More respondents are recorded among non-recipients without a secondary occupation.

As most of the loans in the credit scheme require a minimum 10 percent down payment in cash, eligibility for credit was facilitated by contribution in cash or kind from other members of the household. Table 4 shows the economic activities of family members of recipient and non-recipient households.

Table 4: **Activities of household members by group surveyed (%)**

| Activity | Recipients | | | | Non-recipients | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Farming | 28 | 2 | 4 | 4 | 27 | 3 | 5 | 2 |
| Fishing | 11 | 3 | 21 | 6 | 8 | 3 | 7 | 5 |
| Processing | 5 | 3 | 7 | 1 | 6 | 1 | 6 | 2 |
| Trading | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 0 |
| Other | 1 | 1 | 2 | 3 | 3 | 0 | 1 | 1 |

Where: 1 = Spouse 3 = Children
2 = Sibling 4 = Extended family and others

Differences are observed between recipient and non-recipient households with regard to the participation of children in fishing activities and overall contributions of other family members. Of the families that received a loan, 64 percent have other contributors to the household income, whereas in non-recipient households, the percentage is only 55. Women are the major contributors to the household and their main activities are in farming. However, for both groups the participation of spouses in economic activities is below 50 percent.

## 3.2 Education

The level of education of the heads of households has been analyzed. Figure 2 shows the educational levels of heads of households. It appears that recipients are slightly better educated than non-recipients, even though the percentage of heads of households who underwent secondary education is a little higher in non-recipient households. Eight percent of the non-recipients received no formal education and may therefore be considered illiterate. Illiteracy among recipients is estimated at 2 percent.

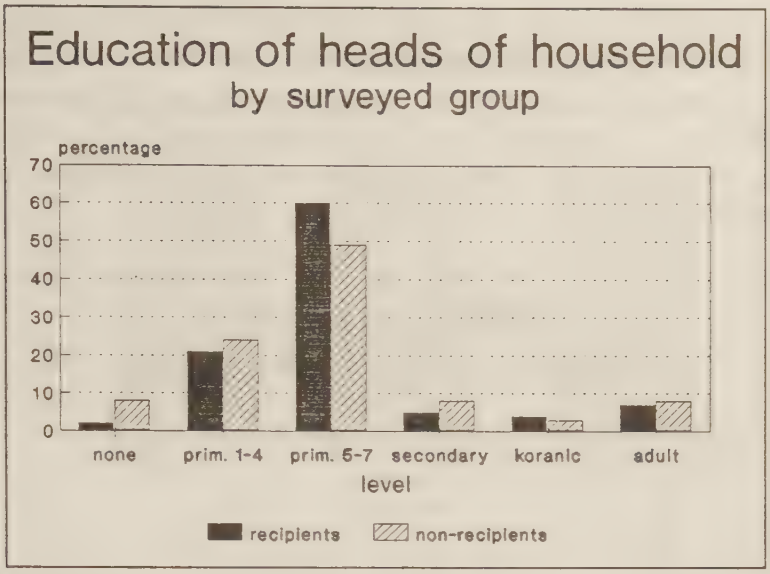


Figure 2

According to the women's questionnaire, the illiteracy rate for women is 39 percent: 33 percent for women in recipient households and 46 percent for women in non-recipient households. In terms of primary education, 60 percent of all heads of recipient households completed higher primary education, whereas 21 percent entered primary school but did not reach standard 5. For non-recipients, it is estimated that 24 percent underwent lower primary education and that 49 percent have completed higher primary education. Secondary education is followed by 8 percent of the non-recipients and by 5 percent of the recipients. Koranic school is followed by 4 percent of the respondents and adult education by 8 percent. With regard to the latter two, there are only minor differences between the two groups.

Of the women who were interviewed, the next largest group after the illiterate is those who reached higher primary education (38 percent).

The comparison between recipient and non-recipient households reveals that a significantly higher proportion of those who received loans, i.e. 43 percent, had completed 5 to 7 years of school, while only 33 percent of the non-recipients had attained the same level. For lower levels of primary education (standards 1 to 4) the proportion appeared the same for both categories, i.e. about 11 percent overall.

### 3.3 Ethnicity and religion

The ethnic background of both recipients and non-recipients is presented in Figure 3. For comparison, the results of the sample survey on socio-economic characteristics of the artisanal fishery in the region (Leendertse and Horemans 1991) are also given. It follows that the sample of the non-recipients in the project villages shows a population strongly dominated by Muha (69 percent) whereas the recipients consist of 38 percent Muha and 22 percent Mbembe and other tribes. In general, the recipients surveyed represent an ethnic grouping which is more in conformity with the overall fishery population in the region,

although Mrundi are slightly underrepresented and Mbwali overrepresented. According to the women's questionnaire, the population profile resembles the head of household figures, with the Muha representing 63 percent of the non-recipients and 41 percent of the recipients. As was found in the head of household data, the next most predominant tribe for women was the Mbembe tribe, accounting for 21 percent of the surveyed population and making up 26 percent of the loan recipients.

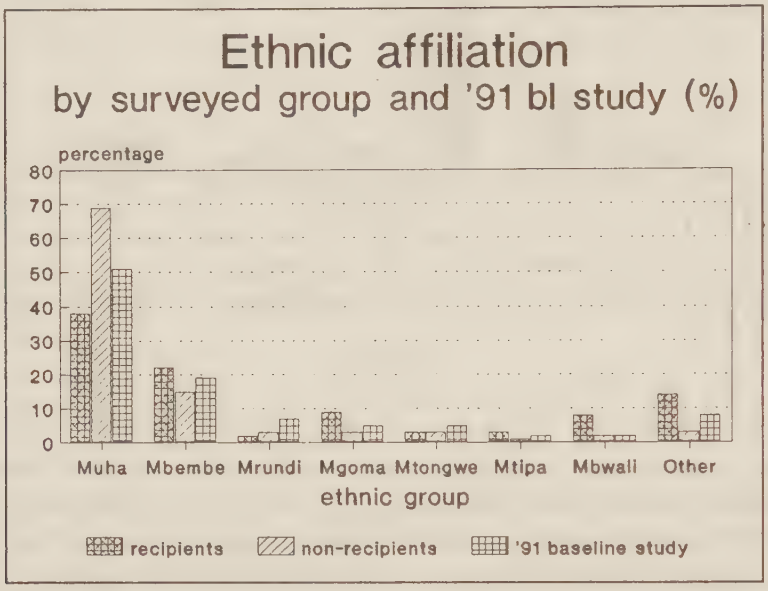


Figure 3

The religious affiliation of the population surveyed is displayed in Figure 4. The graph presents the results of the head of household questionnaire, in comparison with the proportions found in the 1991 baseline study. For all three groups, the Muslims are in the majority, followed by protestants and catholics. For both recipients and non-recipients, it is observed that catholics are slightly over-represented and protestants under-represented when compared to the results of the outcome of the baseline study. There are no significant differences observed between the two groups surveyed as far as religious backgrounds are concerned, nor were there striking differences observed with regard to the religious affiliations of the women in the study.

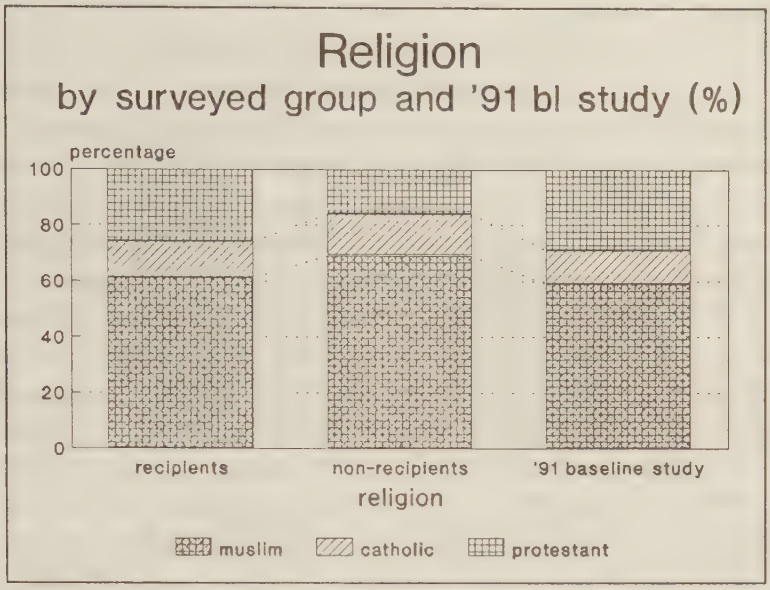


Figure 4

### 3.4 Age structure

Comparing the age structure of the recipient group with the reference group of non-recipients, it is noteworthy that more recipients than non-recipients are found in the age group from 40 to 49 years of age, while non-recipients are more prominent in the age group from 20 to 29 years. For the women surveyed, the age structure showed no significant differences for the two groups.

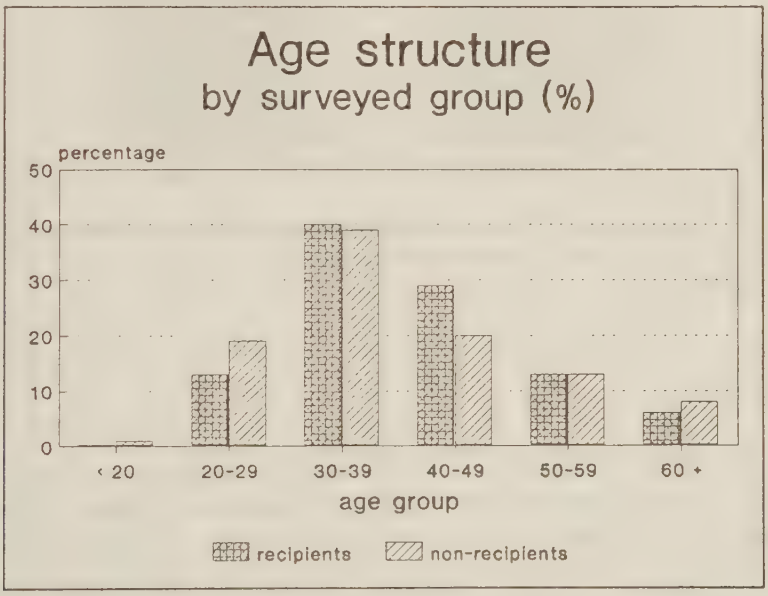


Figure 5

### 3.5 Marital status

There are no significant differences observed between the two surveyed groups with regard to marital status; both groups are predominantly married (92 percent for recipients and 97 percent for non-recipients). Most heads of households are married men (89 and 94 percent). In 3 percent of the cases in both groups, married women are considered heads of households. In total, it is found that 10 percent of the recipient households and 4 percent of the non-recipient households are headed by females. Among the non-recipients, no single-member household is recorded, whereas 3 percent of the recipient households are single-member households. Related to the tradition of dowry, the number of wives is sometimes regarded as an indication of wealth. With this in mind, married male heads of households were asked to indicate how many wives they have. Differences are observed between the recipients and the reference group (Figure 6). On average, the married recipients have 1.6 wives and the married non-recipients 1.4. Of the recipients, 56 percent have one wife against 65 percent of the non-recipients; 32 percent and 27 percent of recipients and non-recipients respectively have two wives; 7 percent for both groups have three wives; while 4 percent of the recipients have more than three wives, compared to 1 percent of the reference group.

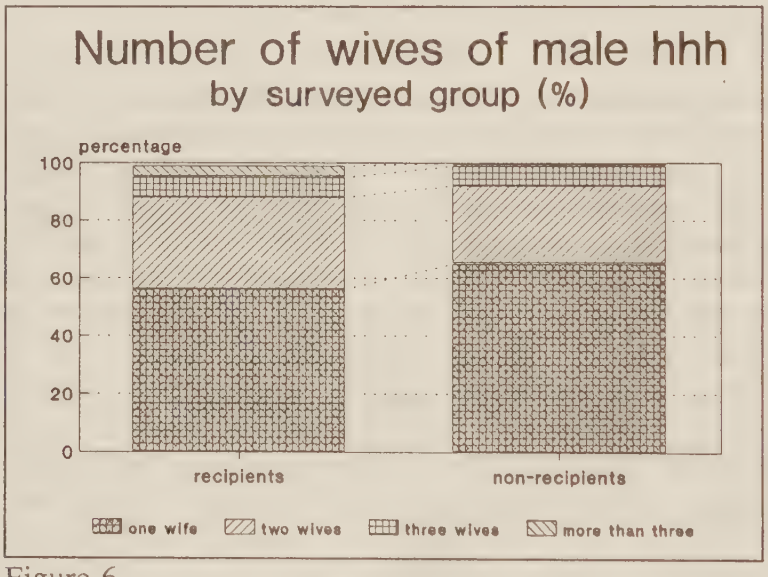


Figure 6

### 3.6 Household size

In accordance with differences in the number of wives, the average household size differs considerably between for the two surveyed groups. Figure 7 depicts the average number of household members and the average number of dependent children of the recipients and the non-recipient reference group. The average recipient household size stands at 12.4 members, while non-recipient households have on average 9.7 members. The number for dependent children averaged 7.4 for recipients and six for non-recipients.

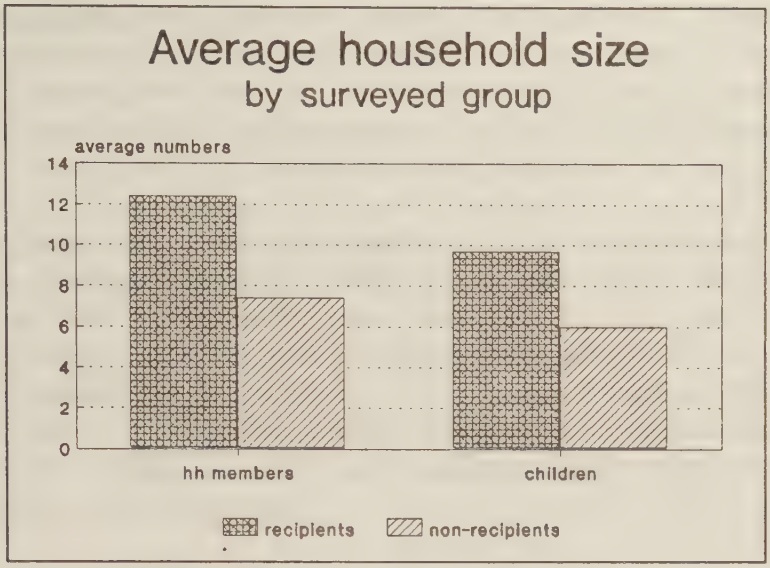


Figure 7

## 3.7 Migration

Permanent and temporary migration of the respondents and their household members have been investigated and analyzed per stratum, since migratory behaviour may depend on geographical location. The stratification follows the one in the socio-economic sample survey referred to earlier. Table 5 shows the number of household members, i.e. that were born in another village and thus have migrated to the village.

Table 5: **Household members born in another village (%)**

| | All | | Stratum I | | Stratum II | | Stratum III | |
|---|---|---|---|---|---|---|---|---|
| | rec. | n-r. | rec. | n-r. | rec. | n-r. | rec. | n-r. |
| **respondent** | 48 | 43 | 27 | 32 | 65 | 67 | 86 | 80 |
| **spouse** | 17 | 20 | 13 | 17 | 33 | 30 | 5 | 20 |
| **children** | 3 | 2 | 0 | 2 | 7 | 4 | 5 | 0 |
| **spouse + children** | 13 | 2 | 1 | 0 | 26 | 7 | 32 | 7 |
| **ext.family** | 4 | 3 | 1 | 2 | 7 | 4 | 10 | 14 |
| **all** | 1 | 2 | 0 | 0 | 5 | 0 | 0 | 20 |
| **none** | 38 | 44 | 63 | 54 | 9 | 22 | 9 | 13 |

As is shown in the table, there is little difference in migratory behaviour between recipients and non-recipients, but when observed by stratum, differences are significant. Recipients in stratum I appear more sedentary than in the other two strata. The same is true for the reference group, although differences between the strata are not as pronounced as for recipients.

When investigating temporary migration, a significant difference is seen between the two groups (Figure 8). Thirty-four percent of the recipient households have a second house elsewhere, against only 7 percent of the non-recipient households. In all strata, the recipient households more often have second homes than the non-recipient households, e.g. 50 percent of the recipient households surveyed in the third stratum have second homes while their neighbours in the reference non-recipients group have none. This may confirm the differences observed between ethnic backgrounds of the two groups. It is also notable that 90 percent of the second homes are situated in Kigoma and Ujiji, with only 10 percent elsewhere.

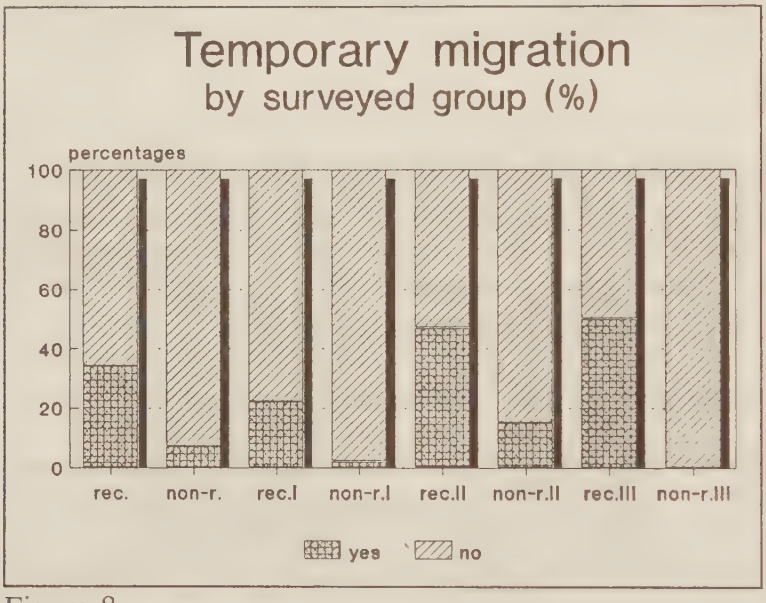


Figure 8

According to the project staff and information from project beneficiaries presented in chapter 5, most of the second homes have been paid for with income derived from participation in the project.

## 3.8 Conclusion

When looking at the social and demographic characteristics of recipient and non-recipient households in terms of occupational and educational status as well as ethnicity and religion, only small differences can be found; the overall picture is very similar. These similarities between project beneficiaries and others who did not participate in the project suggest that the project did not cater to a special group but more or less to the average fisherfolk household in the Kigoma region. In terms of ethnic group, the households who

participated in the project better reflect the distribution of tribes in the region than the sample households which did not participate in the region.

In terms of assessing the impact of the project, the social and demographic similarities between project beneficiaries and non-beneficiaries increase the probability that other differences between the two groups which are described and analyzed in the following chapters can be attributed to the project's activities rather than to other factors such as educational and occupational differences which existed prior to the project.

The only significant difference in terms of demographic characteristics is that the percentage of recipient households in the age group 40 to 49 is 9 percent higher than the percentage of heads of non-recipient households while project beneficiaries are less prominent in the age group from 20 to 29 years. This difference might also explain related differences in household sizes and number of wives.

# 4. ASSETS

This chapter assesses the differences between recipient and non-recipient households on aspects of ownership of productive and non-productive assets.

## 4.1 Fishing

As the project supplied fishing inputs on credit, the area where recipients of project credit and assistance would have benefitted most obviously is in the ownership of fishing assets. Figures 9 and 10, on ownership of fishing boats and fishing gear respectively, show indeed significant differences not only in quantitative terms but also in ownership of more productive and more expensive fishing assets (see replacement costs of boats and gear in Leendertse and Horemans 1991).

Figure 9 depicts ownership of the three types of fishing boats that occur in the region by recipient and non-recipient households. It not only appears that recipient households more often own catamarans (65 percent of the households against only 10 percent of the non-recipient households) but also that they own more planked canoes (34 against 27 percent). Largely based on traditional technology, the non-recipients own more dugout canoes (29 against 26 percent). From the perspective of assets per owner, the averages for recipient respondents are higher than for the reference group. For both groups, catamaran owners own on average 1.2 units, but for planked canoes the averages are 1.8 and 1.4 for recipients and non-recipients respectively. Also for dugout canoes, the averages per household are in favour of recipients (1.6 against 1.4 boats per owner) which implies that those recipient households which own dugout canoes own more than non-recipient households.

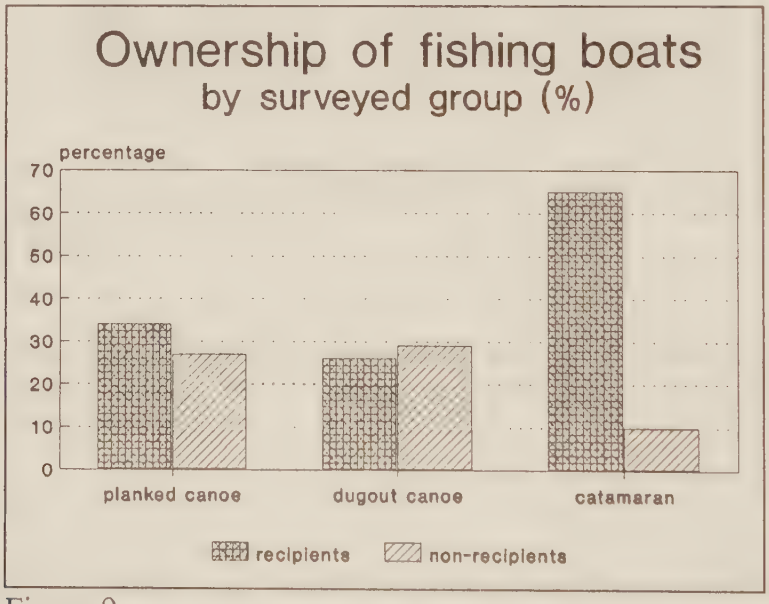


Figure 9

Various types of fishing nets are operated in the Kigoma region, of which the most widely distributed ones are beach seines, scoop nets and lift nets. Figure 10 provides

information on ownership of fishing gear in the households surveyed. In addition to several nets, i.e. gillnets (GN), scoop nets (SN), beach seines (BS), liftnets (LN)), the diagram indicates ownership of handlines (HL) and supporting gear and equipment, such as outboard engines (OB eng.), pressure lamps (Pr.L), fish drying racks (FR), fish boxes or baskets (FB), and other gear. Here too, it is observed that recipient households own not only more but also qualitatively better gear than non-recipient households. Only scoop nets and handlines are owned more frequently in non-recipient households. Differences are pronounced in the ownership of lift nets (48 percent of recipient households against 8 percent of the reference group), pressure lamps (94 against 45 percent), outboard engines (30 against 1 percent), in addition to the more traditional beach seines (33 against 6 percent).

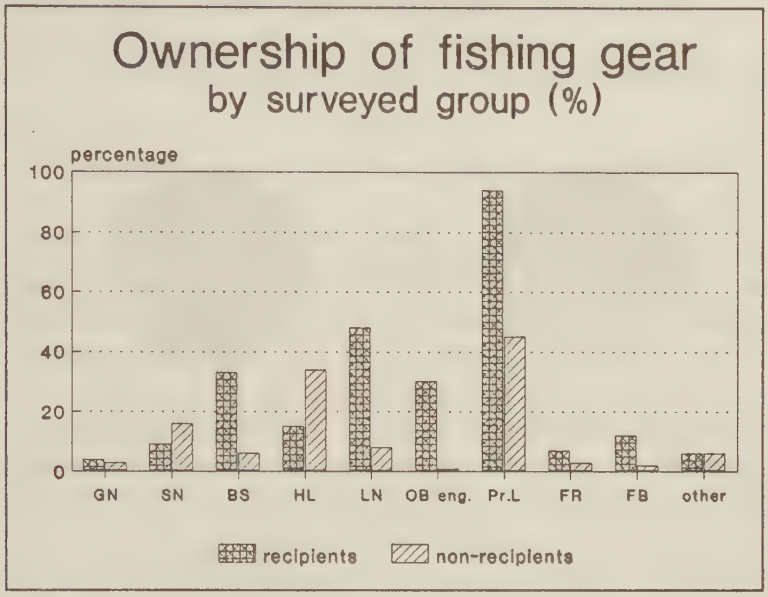


Figure 10

It is found that the owner of the fishing assets is also the head of the household. This implies that for recipient households 90 percent of the assets are owned by the male head of the household and only 2 percent are owned by their wives. Four percent are jointly owned and the remaining 4 percent are owned by female heads of households. In non-recipient households, 97 percent of the fishing assets are owned by male household heads with the remaining held jointly.

Of particular interest when assessing the impact of the project are the modes of acquisition for the various fishing assets. Figure 11 displays the method of financing of all fishing assets for both groups surveyed.

As would be suspected, there are significant differences in the proportion of fishing assets that are financed with savings and with loans. Recipients financed 58 percent of their assets with savings and 39 percent with loans. Non-recipients bought 90 percent with savings and only 2 percent with loans. Broken down by asset, liftnets are the most frequently financed fishing asset of recipients (90 percent), followed by beach seines (85 percent), pressure lamps (41 percent), catamarans (39 percent), and outboard engines (36 percent).

The figures prove clearly that the project had a very strong impact on the endowment of fishermen with fishing craft and gear, particularly with innovative ones such as liftnets. It could also imply that, except for lift nets and beach seines, a substantial part of the other assets is financed by additional income gained through project assistance. For example, 60 percent of the catamarans (amounting to 66 catamarans) owned by recipients is financed with savings, whereas the reference group owns in total 18 catamarans. Chapter 9 explores further additional benefits through project loans.

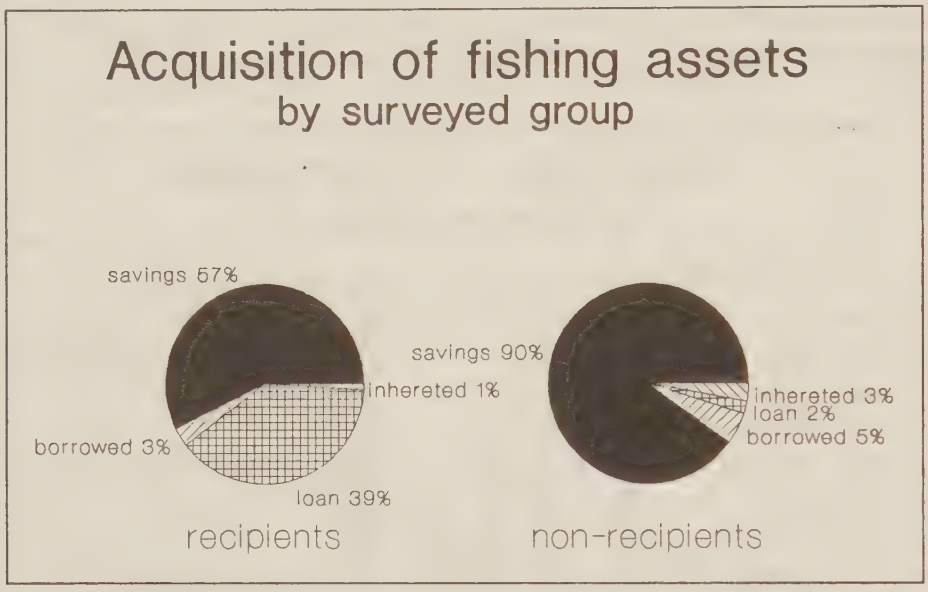


Figure 11

The next sections investigate possible effects of increased incomes through project assistance on farming activities and on the acquisition of other productive or non-productive assets, such as consumer articles.

## 4.2 Farming

A vast majority of both recipient and non-recipient households are involved in farming, mostly as a secondary occupation. Of both groups, 97 percent of the households possess one or more fields, with an average of 3.7 fields. Average acreage, however, is in favour of the loan recipients with 5.9 against 5.1 acreage holding. This difference stems mostly from the significant differences in the first stratum, i.e. 5.8 acres for recipients compared to 4.4 acres on average for the reference group.

As women are largely involved in farming activities, ownership of fields is more varied than ownership of fishing assets. In recipient households, 41 percent of the fields are owned by the husband, while 20 percent are owned by the wife and 36 percent jointly. The remaining 4 percent are owned by female heads of households. In non-recipient households, 46 percent of the fields are owned by the husband and only 9 percent by the wife, whereas 46 percent are owned by husband and wife. Table 6 shows these figures and ownership of crops as well as men's and women's perception of appropriation of earnings.

Table 6: **Ownership of fields and crops and perception of appropriation of earnings from agriculture (%)**

| Ownership | Recipients | | | | | Non-recipients | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | H | W | J | FH | no | H | W | J | FH | no |
| **Fields** | 41 | 20 | 36 | 4 | na | 46 | 9 | 46 | 0 | na |
| **Crops** | 30 | 25 | 41 | 4 | na | 29 | 14 | 57 | 0 | na |
| **Earnings men's perc.** | 35 | 11 | 33 | 1 | 21 | 28 | 2 | 51 | 1 | 19 |
| **Earnings, women's perc.** | 20 | 4 | 28 | na | 48 | 16 | 5 | 32 | na | 47 |

Where: H = Husband J = Joint
W = Wife FH = Female Head of Household

According to women's perceptions, earnings go mostly to their husbands, whereas most men have the opinion that earnings are jointly owned. Of interest is also the high percentage of women who believe that there are no earnings at all from farming. While there are similar gaps between women's and men's perceptions of the appropriation of earnings from agriculture in the group of project beneficiaries and the group of non-beneficiaries, there are distinct differences between both groups as far as the ownership of agricultural land and crops are concerned. Among the project beneficiaries, women are more often the owners of land and crops than among households which did not participate in the project. One of the reasons for the stronger economic role of women is most likely the women's activities of the project which include tree plantation and a small revolving loan fund for non-fisheries income-generating activities.

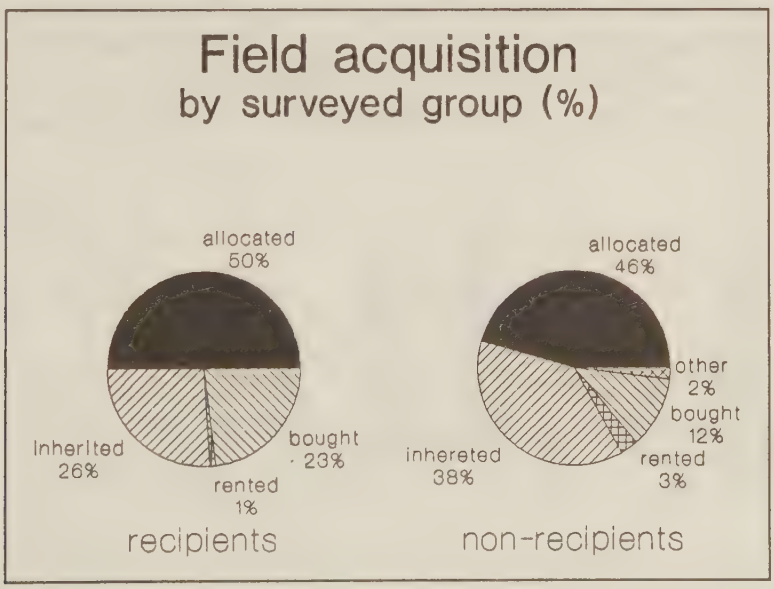


Figure 12

The means of acquisition of fields are expressed in Figure 12 for recipient households and for the reference group. Nearly 50 percent of the respondents have had their fields allocated to them by the village chairman. Considerable differences are recorded between the two groups concerning purchase or inheritance of fields. More recipients have bought their fields (23 percent against 12 percent for non-recipients), while in contrast 38 percent of the non-recipients inherited their fields against 26 percent of the recipients.

As shown in chapter 9.3, additional income generated through the fisheries input supply and credit activity as well as through the activities for women would have been used to some extent to buy agricultural land.

## 4.3 Other productive assets

The ownership of productive assets other than for fishing or farming has been investigated and analyzed for the two groups. It follows that there are considerable differences between recipients and non-recipients: 41 percent of the recipient households have one or more additional productive assets, of which 31 percent have one asset, 8 percent have two assets and 2 percent have three or more; only 20 percent of the reference group households have any other productive asset, of which 15 percent have one asset, 4 percent two assets, and 1 percent have three or more assets.

Figure 13 shows percentages of households by surveyed group that own one or more of the specified productive assets. It is obvious that recipient households score higher than non-recipient households for all productive items, except for palm oil extractors. The most pronounced difference is in the ownership of shops. While 20 percent of the recipient households own one or more shops, the proportion for non-recipient households is found to be only 3 percent. Also for restaurants, sewing machines and bicycles, the percentages of recipient households are higher. Other productive assets include guesthouses, water taxis, grinding mills and rent from flats or houses. It is noteworthy that virtually all those fall under male ownership and that all are financed through savings. As in the case of fields and crops, it can be assumed that additional income generated through the fisheries related activities of the project and through its women's activities helped the project beneficiaries to improve their endowment with productive assets such as small shops, restaurants, sewing machines, etc.

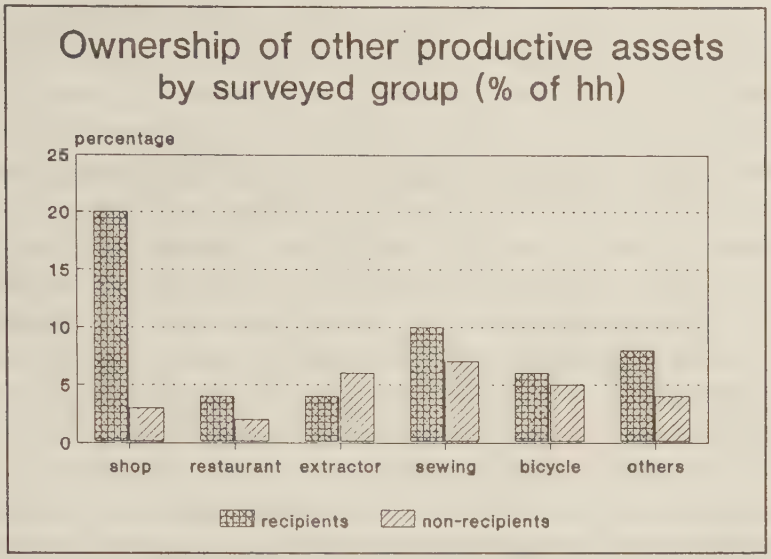


Figure 13

## 4.4 Non-productive assets

As an indicator of non-productive expenditures of fisherfolk, respondents were asked which consumer articles the household possessed, such as radio, radio/cassette recorder, table, chairs, cushions, mosquito nets and mattresses. Only one percent of both recipient and non-recipient households did not own any of the specified items. Figure 14 depicts ownership of non-productive assets by item. It shows that a vast majority of recipient and non-recipient households have basic consumer goods, such as furniture (table, chairs and mattresses). Differences occurred where more luxurious items such as cushions, mosquito nets and radio/cassette recorders are concerned. Of the recipient households, 48 percent have radio/cassette recorders, 10 percent have cushions and 30 percent have mosquito nets; for non-recipient households, these percentages are only 22, 1 and 17 respectively.

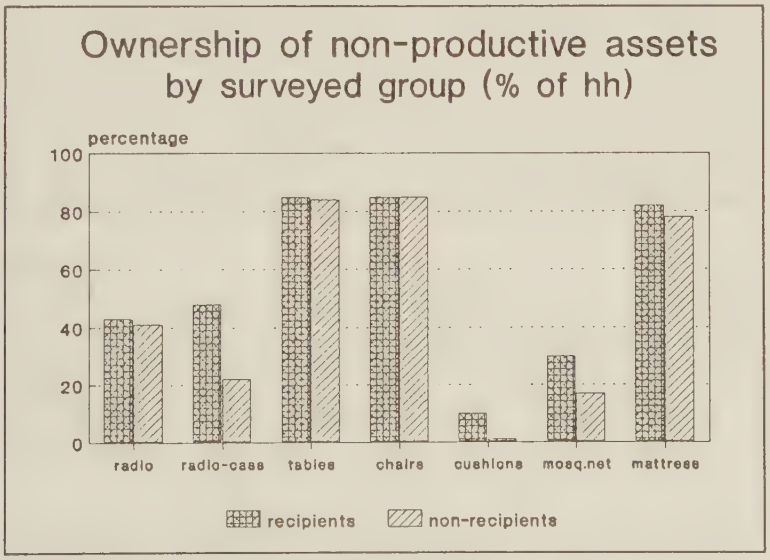


Figure 14

Another important non-productive asset is the type of oven which is used for cooking in a household. It is assumed that the choice of oven depends on knowledge and tradition as well as on affordability.

It was found that most respondents were still cooking on three stones with wood as energy source. In recipient households, however, 46 percent also used a stove, 27 percent of which were improved stoves, while in non-recipient households only 20 percent used stoves, of which 18 percent were improved. Women of households which benefitted from the project also use more energy sources: 43 percent use wood and charcoal and 5 percent use only charcoal, while the percentages for non-recipient women are 22 and 3 respectively.

## 4.5 Conclusion

As expected, there are distinct differences between households which have received fishing inputs on credit from the project and the reference group of households which was not assisted by the project. Recipient households are much better endowed with fishing craft and gear and particularly with innovative and more sophisticated gear such as liftnet units.

Recipient households are also better endowed with farming and other productive assets such as small shops and restaurants, machines and bicycles, many of which have been acquired with additional income generated through the project. In terms of consumer articles, recipient households own more items which can be considered luxury goods, such as radio/cassette recorders, cushions and mosquito nets.

## 5. HOUSING CONDITIONS

This chapter provides information on housing conditions in the project villages and compares recipient and non-recipient households with regard to the materials which have been used for walls, roofs, and floors and with regard to utilities such as windows, doors and latrines.

### 5.1 Construction

Construction materials of the houses may be considered as indicators of the quality of housing of the surveyed population. They also indicate the distribution of wealth. It has been mentioned, however, that house construction differs in different geographical areas. Analysis per stratum may therefore provide more adequate information.

Table 7 presents data per stratum and for the two groups surveyed on the construction materials for walls, roofs and floors of the houses.

Table 7: **House construction materials, by stratum and group surveyed (%)**

| | | Walls | | | | | Roof | | Floor | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 1 | 2 |
| all | rec | 13 | 59 | 13 | 1 | 14 | 45 | 54 | 64 | 35 |
| | n-r | 12 | 73 | 8 | 0 | 8 | 71 | 29 | 88 | 12 |
| I | rec | 5 | 65 | 24 | 1 | 2 | 18 | 81 | 47 | 51 |
| | n-r | 6 | 81 | 9 | 0 | 4 | 65 | 35 | 87 | 13 |
| II | rec | 12 | 58 | 0 | 0 | 30 | 72 | 28 | 84 | 16 |
| | n-r | 19 | 63 | 4 | 0 | 15 | 81 | 19 | 89 | 11 |
| III | rec | 41 | 36 | 0 | 5 | 18 | 91 | 9 | 86 | 14 |
| | n-r | 40 | 40 | 0 | 0 | 20 | 100 | 0 | 100 | 0 |

Walls:
1 = mud
2 = wattle + mud
3 = wattle + cement
4 = cement
5 = bricks

Roof:
1 = grass
2 = corr. sheets

Floor:
1 = rammed earth
2 = cement

The majority of houses are made of wattle and mud walls, grass roofs and earthen floors. This is also the case for most of the project beneficiaries' houses. Many of their

houses are made with more durable and expensive materials such as cement and bricks for the walls, corrugated sheets for the roofs, and cement for the floors.

Jealousies, particularly amongst the villagers in the southern strata, mean that the "better off" fishermen must be rather careful in what could be seen as flaunting his wealth. So although his village house may be a simple mud and grass affair, he would build a brick/cement block walled and galvanised iron roofed building in urban Kigoma or Ujiji if able to afford it.

## 5.2 Utilities

Household utilities have been investigated (Table 8). It appeared that all houses in the three strata were equipped with pit latrines and that almost all houses have windows and hinged doors. Only minor differences occurred between the two groups surveyed. Of the recipients' houses, 96 percent have windows and 97 percent have hinged doors. For the non-recipients houses, the percentages are 90 and 92 respectively.

Table 8: **Houses provided with utilities, by stratum and group surveyed (%)**

| | | Windows | Pit latrine | Hinged doors |
|---|---|---|---|---|
| all | recipients | 96 | 100 | 97 |
| | non-rec. | 90 | 100 | 92 |
| I | recipients | 97 | 100 | 95 |
| | non-rec. | 92 | 100 | 93 |
| II | recipients | 93 | 100 | 100 |
| | non-rec. | 78 | 100 | 81 |
| III | recipients | 95 | 100 | 100 |
| | non-rec. | 93 | 100 | 100 |

## 5.3 Conclusion

Households which received fishing inputs on credit from the project managed to improve their housing considerably compared to households which did not benefit from the project. Improvements included brick walls, cement floors and corrugated iron sheet roofs. As chapter 9.3 shows, improvement in housing conditions was the first priority for use of additional income generated by the project.

# 6. DECISION MAKING AND ASSIGNMENT OF HOUSEHOLD TASKS

Phase II of the project was reoriented to address women as a specific target group and to enhance women's participation in fisheries related activities, such as processing and marketing, as well as in small-scale enterprises. Women's participation in the credit scheme began in August 1989, with the objectives of:

(a) providing equal access for women to all extension services available to fishing communities;

(b) increasing their capability in managing small-scale enterprises; and

(c) increasing women's participation in community development and involvement in decision making.

With regard to women's involvement in income generating activities, the project impact study found that women contribute to household incomes mainly with farming activities and less with fisheries related activities and that ownership of fishing assets rests mainly with men, although there were some notable exceptions where groups of women became owners and managers of liftnet fishing units with the help of a loan from the project through CRDB.

While involvement of women in income generating activities has been described in chapter 3, the following chapter describes decision making patterns and assignment of tasks in the household.

## 6.1 Decision making

Men's and women's perceptions on decision making of specific topics have been investigated and decision making patterns in recipient and non-recipient households have been compared. It was found that there are hardly any differences between recipient and non-recipient households with regard to decision making on small household items and production assets. In the majority of households, recipient and non-recipient, decision making responsibilities rests with men. There are some differences between men's and women's perceptions where the purchase of small household items, furnishings, and the selection of spouses are concerned. Women also perceive more responsibilities for men in medical treatment than men themselves do.

Despite these differences, and although husbands and wives were questioned separately, there is relatively close agreement in the family on who actually makes the daily decisions with regard to such important matters as house construction, schooling, celebrations, and the purchase or production assets.

Table 9 shows decision making patterns in both women's and men's perceptions in recipient and non-recipient households.

Table 9: **Decision making in recipient and non-recipient households according to men's and women's perceptions (%)**

| | | Recipients | | | | Non-recipients | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Topic | H | W | J | O | H | W | J | O |
| Men's perception | Construction | 80 | 2 | 15 | 3 | 87 | 0 | 13 | 0 |
| | Furnishings | 80 | 3 | 14 | 3 | 91 | 0 | 9 | 0 |
| | Small items | 45 | 21 | 31 | 3 | 50 | 15 | 35 | 0 |
| | Schooling | 65 | 3 | 29 | 3 | 66 | 0 | 33 | 0 |
| | Medical care | 34 | 14 | 48 | 3 | 33 | 13 | 54 | 0 |
| | Celebration | 30 | 3 | 64 | 3 | 29 | 1 | 69 | 1 |
| | Production assets | 62 | 4 | 31 | 3 | 67 | 0 | 33 | 0 |
| | Spouse for child | 24 | 2 | 71 | 3 | 21 | 2 | 76 | 1 |
| Women's perception*) | Construction | 76 | 1 | 18 | 4 | 81 | 1 | 18 | 0 |
| | Furnishings | 74 | 1 | 20 | 4 | 80 | 2 | 18 | 0 |
| | Small items | 19 | 32 | 43 | 5 | 20 | 42 | 38 | 0 |
| | Schooling | 56 | 2 | 32 | 4 | 69 | 1 | 27 | 0 |
| | Medical care | 41 | 12 | 42 | 4 | 38 | 11 | 49 | 1 |
| | Celebration | 36 | 1 | 59 | 3 | 38 | 2 | 60 | 0 |
| | Production assets | 60 | 2 | 33 | 4 | 59 | 2 | 38 | 0 |
| | Spouse for child | 21 | 2 | 59 | 3 | 22 | 2 | 64 | 1 |

H = Husband J = Joint
W = Wife O = Other

*) Where in some cases no answers are given, some of the rows do not amount to 100 percent

The overall picture that emerges in both recipient and non-recipient households, as well as in women's and men's perceptions, is that the strongest male domains in decision making are house construction and furnishing, where in between 74 and 91 percent of all cases, depending on the gender of the respondent and on recipient/non-recipient, decisions are made by the male head of the household alone.

In the households surveyed, women decide on their own on house construction and furnishing in less than 3 percent of the cases, while joint decision making of husbands and wives account for 15 to 20 percent.

Other male dominated areas of decision making are the acquisition of production assets and schooling of children where, depending on whether recipient or non-recipient of a loan from the project and on gender, male dominated decisions prevail in 56 to 69 percent of all cases.

Areas where in the majority of cases decisions are made jointly by women and men or by women alone include selection of spouses for children, medical care and the purchase of small household items. It is against this background that the assignment of household tasks needs to be seen.

## 6.2 Task assignment

Table 10 on the next page shows not only that the differences between the two groups surveyed are minor but also that there are no significant differences in the perceptions of men and women. Where men and women do differ is in their opinion of responsibilities regarding shopping and tailoring; and to a certain extent, there are also differences where gardening is concerned.

Tasks which in the opinion of men and women and recipients of project assistance and non-recipients are predominantly assigned to wives include cooking, collection of firewood, washing of clothes, cleaning, fetching of water and child care. The only tasks which are predominantly assigned to men are repairs in the house.

Budgeting and management of household finance is done by men in a little less than half of the cases while from between 34 and 44 percent of all cases it is done jointly by husband and wife.

In 30 to 39 percent of all cases, tailoring is done by wives and mothers and children living in the household and in 20 to 32 percent of all cases also by husbands and male youths.

## 6.3 Conclusion

As could be expected, there are only minor differences between recipients of project assistance and households which did not benefit from the project with regard to decision making patterns and task assignment at household level. Particularly the similarities of recipient and non-recipient households in decision making suggest that the activities for enhancing the social and economic roles of women need more time to show impact at the household level or that they should be reoriented in order to also enhance women's role in decision making at household level.

Table 10: **Task assignment in recipient and non-recipient households according to men's and women's perceptions (%)**

| | | Recipients | | | | | | Non-recipients | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tasks | H | W | MY | FY | MC | HW | H | W | MY | FY | MC | HW |
| Men | Cooking | 1 | 78 | 2 | 3 | 15 | 0 | 1 | 80 | 1 | 2 | 11 | 3 |
| | Firewood | 3 | 68 | 1 | 4 | 18 | 2 | 1 | 78 | 0 | 6 | 13 | 2 |
| | Shopping | 31 | 38 | 3 | 1 | 13 | 14 | 38 | 29 | 2 | 0 | 11 | 20 |
| | Wash clothes | 1 | 70 | 2 | 4 | 19 | 1 | 1 | 82 | 1 | 1 | 12 | 1 |
| | Cleaning | 1 | 64 | 3 | 6 | 23 | 2 | 1 | 78 | 1 | 3 | 12 | 4 |
| | Child care | 1 | 57 | 4 | 3 | 17 | 17 | 0 | 40 | 3 | 1 | 7 | 38 |
| | House repair | 82 | 6 | 1 | 1 | 1 | 10 | 93 | 1 | 2 | 0 | 0 | 4 |
| | Gardening | 9 | 43 | 6 | 3 | 8 | 23 | 5 | 54 | 4 | 7 | 9 | 15 |
| | Tailoring | 25 | 25 | 6 | 2 | 5 | 27 | 24 | 23 | 4 | 1 | 8 | 34 |
| | Water coll. | 0 | 64 | 1 | 10 | 20 | 1 | 3 | 72 | 0 | 8 | 15 | 0 |
| | Budgeting | 43 | 8 | 5 | 0 | 4 | 40 | 47 | 3 | 4 | 0 | 2 | 44 |
| Women | Cooking | 1 | 74 | 1 | 6 | 16 | 1 | 0 | 76 | 0 | 2 | 19 | 2 |
| | Firewood | 4 | 68 | 1 | 8 | 16 | 2 | 1 | 72 | 1 | 3 | 17 | 3 |
| | Shopping | 42 | 22 | 3 | 2 | 4 | 26 | 56 | 13 | 2 | 1 | 5 | 23 |
| | Wash clothes | 1 | 75 | 1 | 6 | 16 | 1 | 1 | 83 | 0 | 5 | 11 | 1 |
| | Cleaning | 1 | 73 | 1 | 7 | 13 | 3 | 0 | 80 | 1 | 3 | 12 | 3 |
| | Child care | 2 | 54 | 1 | 3 | 10 | 27 | 2 | 51 | 1 | 1 | 13 | 28 |
| | House repair | 85 | 4 | 1 | 0 | 1 | 7 | 87 | 2 | 1 | 1 | 0 | 9 |
| | Gardening | 2 | 46 | 1 | 5 | 6 | 14 | 2 | 40 | 1 | 2 | 6 | 13 |
| | Tailoring | 17 | 36 | 2 | 4 | 3 | 11 | 16 | 30 | 1 | 2 | 5 | 11 |
| | Water coll. | 0 | 66 | 1 | 7 | 24 | 1 | 0 | 72 | 0 | 5 | 22 | 1 |
| | Budgeting | 46 | 15 | 2 | 0 | 3 | 34 | 45 | 7 | 6 | 1 | 3 | 37 |

H = Husband MY = Male Youth MC = Mother & Children
W = Wife FY = Female Youth HW = Husband & Wife

## 7. FOOD AND PRODUCTION ISSUES

When assessing the impact of the project on its target group, the nutritional status of the surveyed groups and the fishing communities in general is of special interest. Two important indicators are the cultivation of food crops and the daily food habits.

### 7.1 Food crop cultivation

Food crop cultivation is dominated by cassava, palm oil, maize and beans: 97 percent of the respondents produce cassava, 33 percent palm oil, 28 percent maize and 20 percent beans. There are no significant differences between the two groups as far as the crops cultivated are concerned, except that recipients more often produce maize and non-recipients more often beans.

Figure 15 depicts the annual production by crop for the two groups surveyed. With regard to the volume of production, significant differences are shown between recipient and non-recipient households. The average production of all crops except maize is higher for the recipients. This relates to the average larger size of the fields of the recipients, as mentioned in chapter 4.

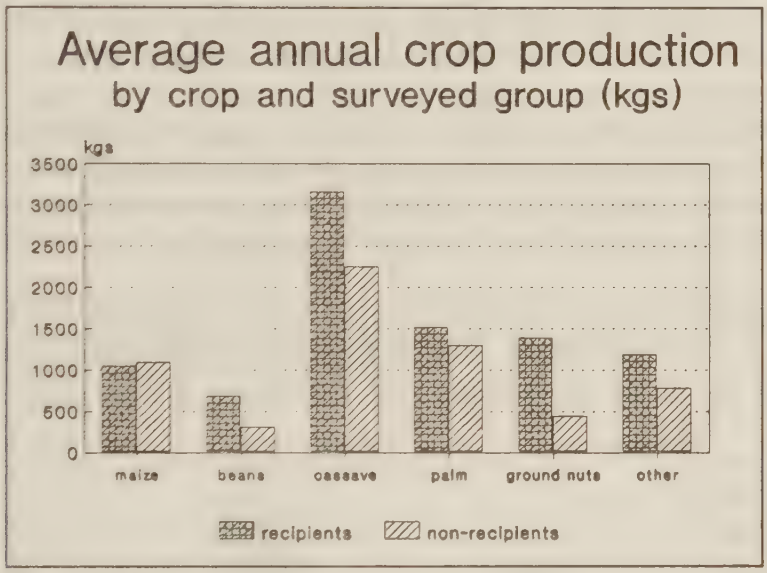


Figure 15

Consequently, also the revenues from farming activities are higher for recipients, although only 45 percent of the recipients and 43 percent of the non-recipients were in a position to sell part of their harvest. On average for all crops, the recipients sell 753 kg per year, whereas the non-beneficiaries sell only 667 kg of their annual production. Because of the higher production figures, the recipients still retain more food for home consumption.

Women were asked about food security until the next season. Of the women in recipient households, 77 percent indicated that the amount of food available is sufficient until the next season, whereas only 66 percent of the women in non-recipient households were of

that opinion. All other women indicated the need to purchase additional food for sufficient provision.

In particular regions, land degradation has also been observed. The reason that more cassava is grown as a staple food in the project area, especially in the northern villages, is not because people prefer cassava to maize, which would improve their diet, but because the land has become insufficiently fertile to grow maize. The project has taken action to supply the Vitamin A rich palm oil seedlings to villagers plus other varieties of fruit trees and vegetable seeds, to improve diets. Cassava is cultivated on steep hill sides without terraces and with trees or grass strips left along the contours. The land degrades rapidly, as the rains wash the top soil into the lake.

The need therefore to purchase additional food is likely to increase in the northern villages (Kigoma to Kagunga) unless a drastic educational soil conservation and tree planting programme is carried out. In the southern villages (Kigoma to Kashagulu) where population pressure is less and the hill sides are more gentle, it is likely that there is scope to increase food production.

Regarding the keeping of livestock, differences between the two groups surveyed have been observed (see Figure 16). Twenty-three percent of the non-recipient households but only 17 percent of the recipient households were not raising livestock at all. The average number of livestock per owner is higher for recipients: a recipient-cattle keeper owns 5 cattle whereas non-recipients own on average 2.8 cattle; averages for goats are 4.7 and 4.4 respectively; for sheep 2.5 and 2; and for poultry 11.9 against 9.5 for the non-recipients. Ownership is defined similarly in both groups. Of all the households surveyed, the male head of the household is the owner in 51 percent of the cases, 31 percent of livestock are jointly owned, and 8 percent are the property of the wife.

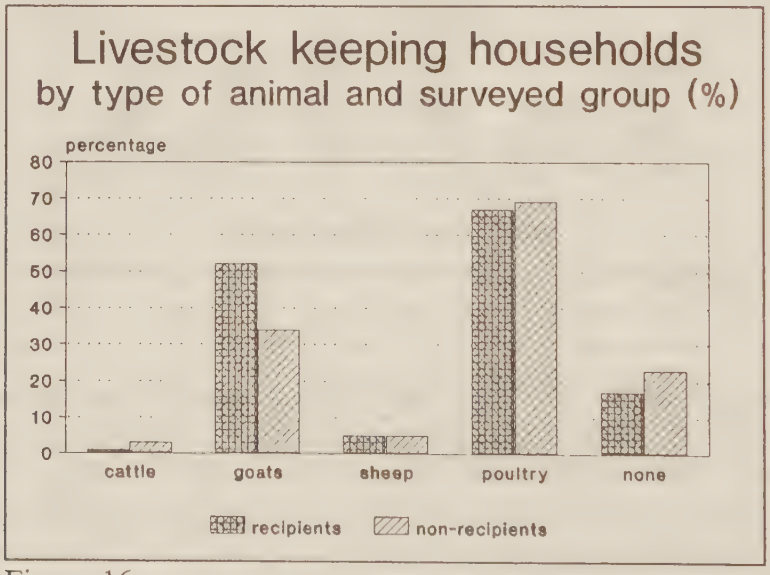


Figure 16

## 7.2 General diet profile

It was found that the primary staple food is cassava, with the accompanying dish "ugali", a stiff boiled porridge made from cassava, which has been fermented, dried and pounded into a meal. The frequency of consumption was above 95 percent for both groups, with no significant difference between them.

A sizable difference was found, however, when investigating the consumption of fish or meat. A notably higher proportion of the loan recipients ate fish or meat six or more times a week (78 percent) compared to the non-recipients (62 percent). The remainder, 22 and 38 percent respectively, ate fish or meat less than six times a week. The frequency of eating a vegetable side dish was almost the same for the two populations, 60 percent ate less than four times a week among the loan recipients while this was 62 percent for the non-recipients.

## 7.3. Conclusion

In chapter 4, it was shown that households which received fishing inputs on credit from the project as well as training and technical assistance, avail themselves of more agricultural land than households which did not benefit from the project. According to the respondents, a part of this land had been acquired with additional income generated by the fishing activities introduced by the project.

The analysis of data on crop cultivation, animal husbandry and diets show that the households which benefitted from the project used their additional land to increase the cultivation of crops and to the raise domestic animals. Both activities increased their food security, the quality of their diet, and generated additional income for the household.

The survey also shows that in the northern part of the project area particular measures need to be taken to counter land degradation and soil erosion.

## 8. NUTRITIONAL STATUS OF CHILDREN

This chapter assesses differences between beneficiary and non-beneficiary households in terms of nutritional status of children, through the utilization of anthropometric data and indications of daily feeding habits.

### 8.1 Child population

A total of 251 children, aged from 3 to 42 months, were included in the study. Their involvement entailed being measured and weighed and their vaccination record copied from the Mother-Child Health Clinic card. The sample included 125 male and 126 female children in the population surveyed. In the loan recipient households, 143 children were logged, and 108 in the reference group. Table 11 displays the distribution of the child population according to age in months and gender.

Table 11: **Distribution of the child population according to age in months and gender (%)**

| Age group | Males | Females | Total |
|---|---|---|---|
| **0-6** | 8(6.4) | 10(7.9) | 18(7.2) |
| **7-12** | 29(23.2) | 18(14.3) | 47(18.7) |
| **13-18** | 26(20.8) | 25(19.8) | 51(20.3) |
| **19-24** | 22(17.6) | 18(14.3) | 40(15.9) |
| **25-30** | 16(12.8) | 15(11.9) | 31(12.4) |
| **31-36** | 15(12.0) | 26(20.6) | 41(16.3) |
| **37-42** | 8(6.4) | 12(9.5) | 20(8.0) |
| **Not stated** | 1(0.8) | 2(1.6) | 3(1.2) |
| **Total** | 125(100.0) | 126(100.0) | 251(100.0) |

The table shows that generally the surveyed child population consisted of almost the same proportion of males and females. There are, however, significant differences in the age groups of 7 to 12 and 19 to 24 months, in which males dominate, which were balanced out in the age group of 31 to 42 months, in which females dominate. Generally, the males were a little younger than the females.

### 8.2 Immunization

The immunization coverage of the children was analyzed by determining the proportion of the children who had been given a particular immunization by age at the time of the survey. Immunization was quite high, with generally about 75 percent for all vaccines

after the age (group) of 13 to 18 months. There were no significant differences between the respondent groups in this respect. Figures 17 and 18 demonstrate the of vaccinations by age for children between 3.5 and 41 months.

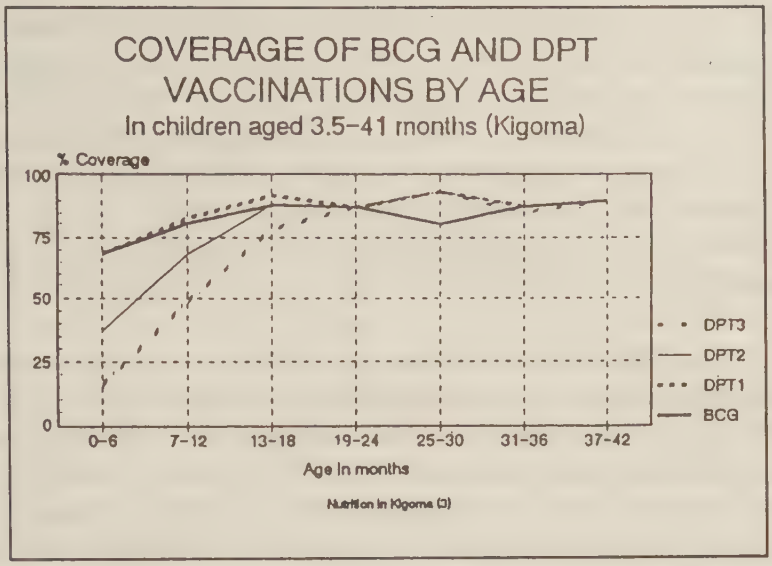


Figure 17

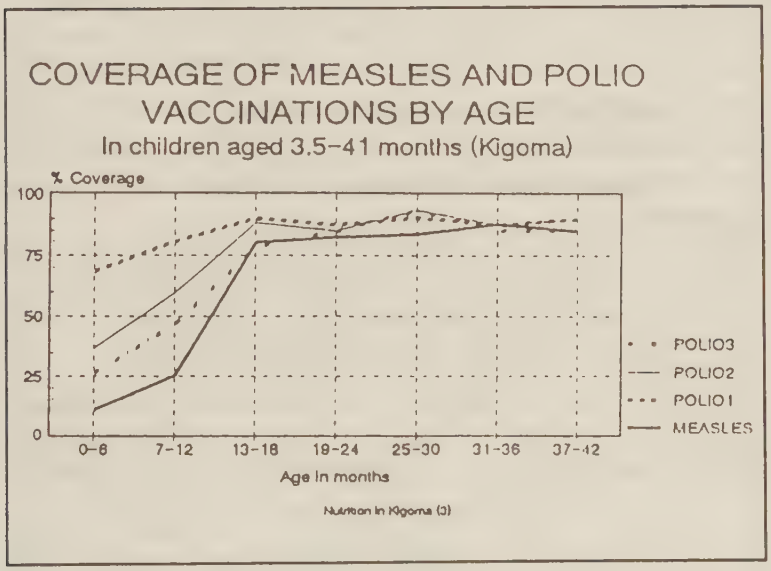


Figure 18

## 8.3 Analysis of the anthropometric data

In order to assess the nutritional status of the children of surveyed respondents, the Epi-nfo programme for analysis of anthropometric data was utilized. The variables age, sex, weight and height in the child population were used to derive Z scores and also the

percentage of the population in each Z-score category. The results were then utilized to plot growth reference curves. Looking for useful correlations, the following Z-scores were used: Height for Age (HAZ), Weight for Age (WAZ) and Weight for Height (WHZ).

The World Health Organization (WHO) international growth reference curves were used as the standard with which to compare the nutritional status of the population studied. Use of Z scores have been selected because they have the statistical property of being normally distributed, thus allowing a meaningful average and standard deviation for a population to be calculated. In addition, Z-scores have the capacity to determine the proportion of a population that falls below extreme anthropometric values. The most striking finding was the generally poor nutritional status of the children studied, when compared to the WHO reference scores.

Figure 19 shows the distribution for the HAZ-score of the children in the two categories and how they compare with the reference curve from WHO. The figures indicate that more than 50 percent of children of both recipient and non-recipient households in Kigoma are below a Z-score of -2 when only about 2.3 percent of the population should be below this score. The two curves for Kigoma are quite similar, though there is a slight improvement in the nutritional status of the children in the loan-recipient households. An anthropometrically low HAZ score is considered an indicator of stunted growth, which is associated with poor overall economic conditions and/or repeated exposure to adverse nutritional conditions. The distribution shows that the population studied has children who are short for their age under normal nutritional standards. This kind of measurement is unlikely to be registered at the clinic as only weight and age are noted.

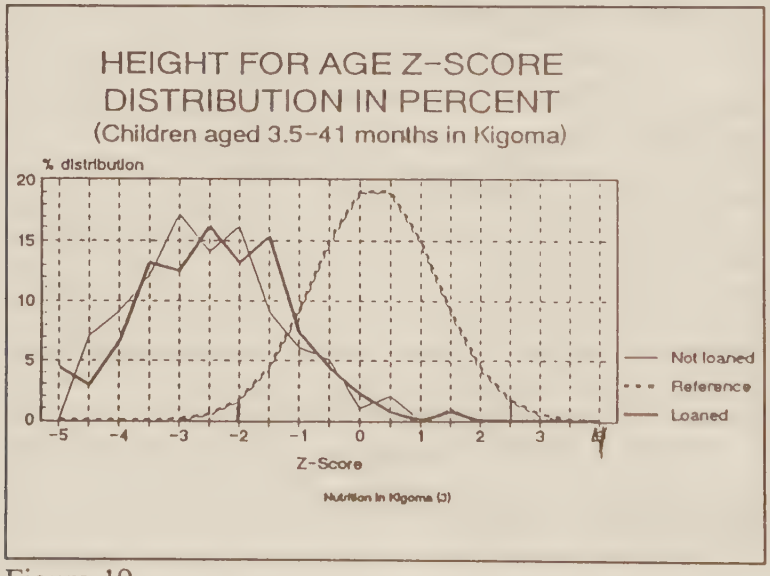


Figure 19

The WAZ score distribution is shown in figure 20 and depicts a similar picture to the one presented in the HAZ score. Both of these scores are limited by the fact that they are unable to distinguish tall overly thin children from short, well-proportioned children.

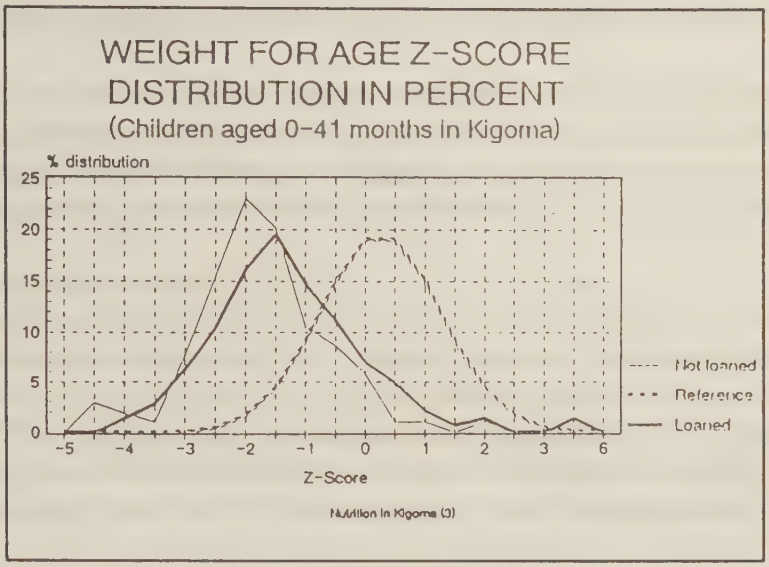


Figure 20

In view of this, the two are combined to look at the relation between weight and height, forming the WHZ-score (Figure 21). Figure 20 portrays the information that is normally recorded in the MCH cards for children at the MCH clinic. This therefore justifies the use of the Weight-for-Age Z-score distribution to assess the nutritional status of the population surveyed. Figure 19 indicates that both categories of children, i.e. living in households of loan recipients and in households of non-recipients, fall within the same nutritional levels compared to the WHO standard except for the fact that those in the loan-recipient households are a little better off, as indicated by the slight shift of the curve towards the right. If age is not considered, the WHZ scores for the surveyed population would fall within normal limits. Thus the necessity for using all the three Z-scores in assessing the nutritional status of a population becomes obvious. It is fortunate that the clinics use age as one of the variables so it is likely that children with poor nutritional status will be spotted.

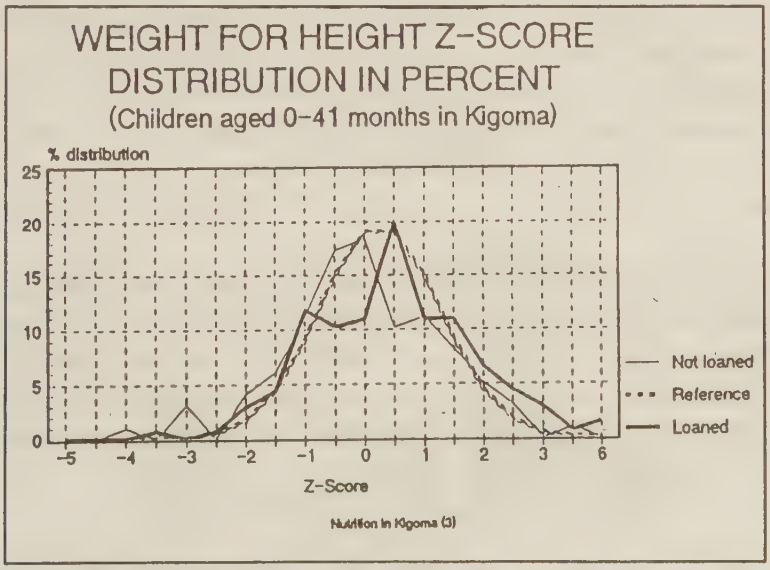


Figure 21

## 8.4 Food types and feeding schedules of non-breast fed children under 4 years of age

It was of particular interest to the study to determine if there were differences in the eating habits of the children between households who benefitted from the project and those who did not. To assess the quantity and quality of food normally eaten by children, the mothers were asked about the food the children had eaten on the day before the survey took place.

The analysis of the number of meals eaten on the day prior to the survey indicated that the was two or three meals. It was observed that 74 percent of the population gave the children three meals on the day before the survey took place. A notable difference occurred between the groups of recipients and non-recipients. An impressive 81 percent of the recipients but only 65 percent from the reference group fed their children three meals on that day. Of the 373 women surveyed, only five gave meals less or more frequently than two and three times.

In enquiring of the previous day's diet, an open-ended question was asked for the mothers to indicate the types of food that was eaten by the children. From the data, several food items were prominent. All were consumed in similar instances and scheduled in the two loan categories, with the exception of rice and fruit. For these foods, there were notable differences in the consumption by the two groups surveyed. Twenty-five percent of the loan recipients gave rice to their children, but only 10 percent of the reference group. These clear differences in food consumption on the eve of the survey could indicate considerable differences in the economic status of the two groups since rice is the most costly of the carbohydrate staples available in the surveyed area.

Fruit was also found to be more frequently consumed in loan-recipient homes than in home of non-recipients (32 and 16 percent respectively).

Other foods that were indicated to be eaten by children on the eve of the survey included porridge (51 percent); sweet potatoes (31 percent) cassava (19 percent); stiff (usually cassava) porridge (99 percent), cooked bananas (19 percent); fish (65 percent); beans (33 percent) and vegetables (6 percent). The slightly better diets of the loan recipients when compared to non-recipients has contributed to improved child growth rates.

## 8.5 Conclusion

The analysis of medical, anthropometric and nutritional data clearly shows that even though the nutritional status of children in households which benefitted from the project has improved when compared to children in households which did not benefit from the project, they are still mal- and under-nourished when compared with WHO standards and efforts initiated under the project need to be continued and strengthened if a sustainable improvement in children's health and nutrition is to be achieved.

## 9. RESPONDENTS' PERCEPTION OF PROJECT IMPACT

The study also assesses the recipients' appreciation of the project in terms of benefits and efficiency of the technical assistance, input and credit supply. A part of the enquiry was directed to all respondents, including non-recipients, in order to get a general idea of the impression the project made on the fishing communities.

### 9.1 Credit and input supply

The project credit scheme supported the supply and introduction of various fishing inputs and technologies ranging from complete fishing units to separate items such as outboard engines, lift nets, pressure lamps and fish drying racks. In the reference group of non-recipients, 32 percent applied for a loan. The vast majority (73 percent) of those who received loans requested them for fishing packages and the remainder (17 percent) for outboard engines. Others requested loans for cash (5 percent), gillnets, pressure lamps and fish drying racks.

Problems occurred in instances where applicants seeking complete packages were forced to work "half-equipped" due to partial approval or delays in the distribution of the goods. Of the recipients, 27 percent encountered this problem, a prime example being the supply of pressure lamps without the necessary fishing gear. A second difficulty faced by the recipients was the long time span between approval and receipt of the approved loan, hampering 13 percent of the recipients. The majority, however, did not experience any difficulties (59 percent) and over 82 percent were able to utilize the loan as had been intended.

The length of time between loan approval and receipt was further investigated. Figure 22 displays the time span from loan application to loan disbursement. In 28 percent of the cases, the loan was received in less than six months. In 46 percent of the cases, however, it took a year and for 11 percent of the recipients it took more than a year to receive the intended fishing inputs.

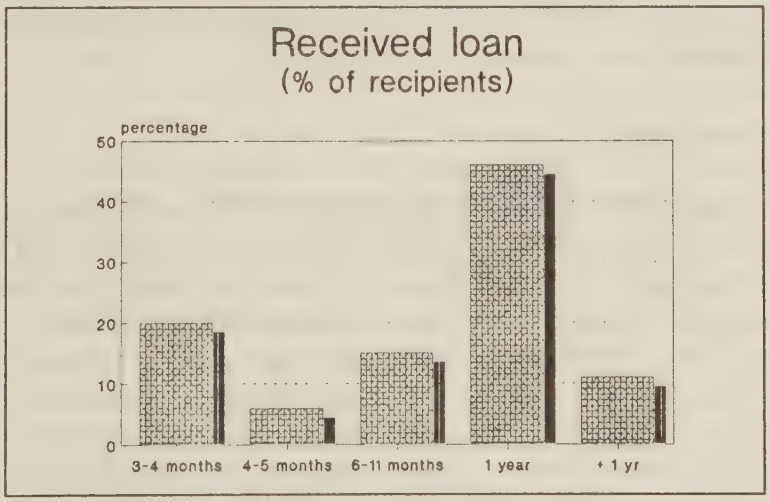


Figure 22

The delays have been attributed to the large number of potential loan seekers. Another factor adding to the delay is the transport of goods from overseas manufacturers from Dar es Salaam to Kigoma. Goods waited in Dar es Salaam for inclusion in consignments of other materials to make up an economical lorry load. Also, during the rainy season transporters are reluctant to rent their vehicles due to the possibility of their trucks being bogged down for weeks. The railways could not be used, due to the high risk of theft. Steps were taken in 1993 to hire smaller trucks in order to reduce the time of making up a load, but this proved more expensive per ton transported.

In terms of timeliness of loan disbursement, 44 percent of the recipients were negatively affected in paying their first instalment, while 52 percent were not affected. For recipients that were required to provide equity, 54 percent were found to have used their own savings, whereas 42 percent used other sources. Only 4 percent overall did not have to provide any equity. Most loanees repaid on a monthly basis (93 percent), while 2 percent paid instalments every three months. An additional 2 percent had not paid an instalment yet. During low fishing seasons, 44 percent of the respondents use savings to make loan payments, while 36 percent use other income and 8 percent borrow. A notable 10 percent did not pay instalments during the low fishing season.

As far as contracts with the bank are concerned, 51 percent of the respondents received visits from bank officers, 5 percent received written reminders, 10 percent received both, and against 1 percent legal action was taken because of wilful default. Surprisingly, 31 percent claimed no communication with the bank had taken place at all.

It is obvious that the CRDB needs to tighten up their schedule of visiting loanees in their villages. Only a small majority will voluntarily come to the Bank in Kigoma to make regular payments, hence the finding that only 51 percent of the loanees had been visited in the village is unsatisfactory. Unless village visits are increased, there might be a drop in loan recovery and subsequently erosion of the value of the revolving fund. The new project boat with inboard engine and cabin will greatly facilitate regular village visits by bank staff.

A detailed assessment of achievements and shortcomings of the credit programmes as well as specific recommendations for enhancing sustainability and need orientation of the programme are contained in a report by U. Tietze (1992).

## 9.2 Technical assistance

In addition to providing loans through the CRDB for fishing inputs, the project provided training and other assistance services to fishing communities. Figure 23 displays the percentages of recipients who were trained or benefitted from other technical assistance provided by the project. Training 1 stands for loan management training, 2 for training in fishing techniques, 3 for maintenance, 4 for technique and maintenance, 5 for all of the above, and 6 for simple book keeping. Fishing equipment maintenance and training in fishing is followed by respectively 13 and 7 percent of the recipients, while 12 percent followed a combination of the two. Loan management is followed by 8 percent and 6 percent followed all provided training. Simple book keeping courses were provided in workshops for women (groups) in the project area, by the Women in Development officer

during the second phase of the project. Only 2 percent of the loan recipients followed such a course, but this does not take into account the participation of women who did not receive a loan and were therefore not interviewed for the purpose of the study.

Other than through loans or training, 26 percent of the recipients benefitted from the project through management workshops for women, fish processing seminars, trimaran demonstrations, but also by the supply of fruit trees and rabbits and on-the-job training in rearing them. Of the recipients, 56 percent benefitted from the purchase of fruit tree seedlings and 22 percent from the purchase of spare parts. For non-recipients, these percentages were 47 and 3 respectively.

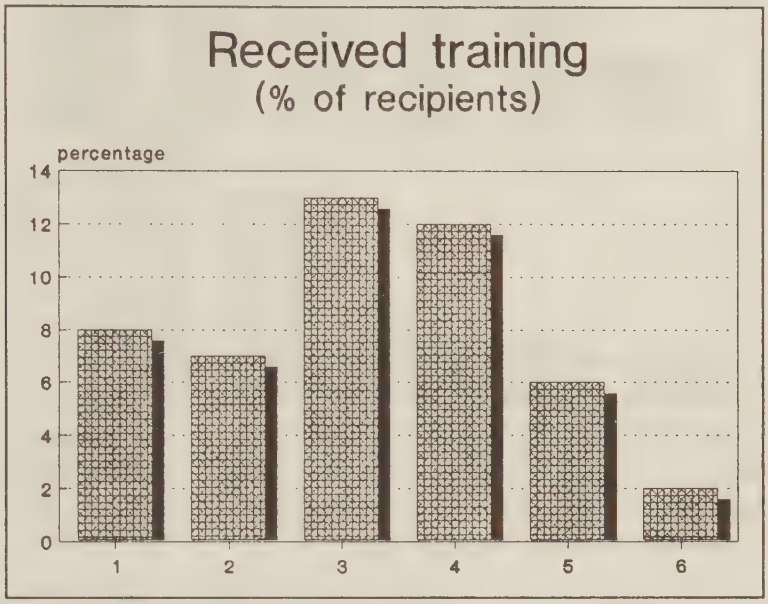


Figure 23

## 9.3 Additional income generated by the project and its use

Of the loan recipients, 88 percent stated that their incomes have subsequently increased, while 8 percent had no opinion on this matter. Figure 24 shows the additional monthly incomes generated by the project. The average increase in monthly income for all loan recipients is Tsh 21 ,506, ranging from 0 to over Tsh 40,000 per month. Of all recipients, 16 percent indicated additional profits of between Tsh 30,000 and Tsh 40,000, while 15 percent had an additional income of more than Tsh 40,000 per month.

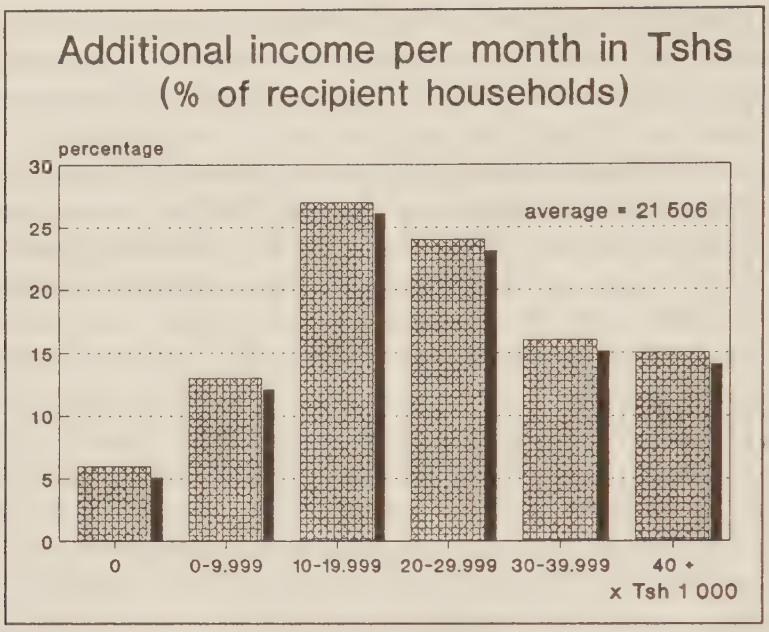


Figure 24

Preferences of respondents for use of additional income were also investigated. Recipients were requested to rank their preferences in order of priority. As shown in Figure 25, 39 percent of loan recipients identified construction or improvement of their homes as a first priority, whereas 30 percent used additional income for education for their children. Reinvesting in fishing followed in third place and was also prominent for second and third priorities. Farming followed in fourth position.

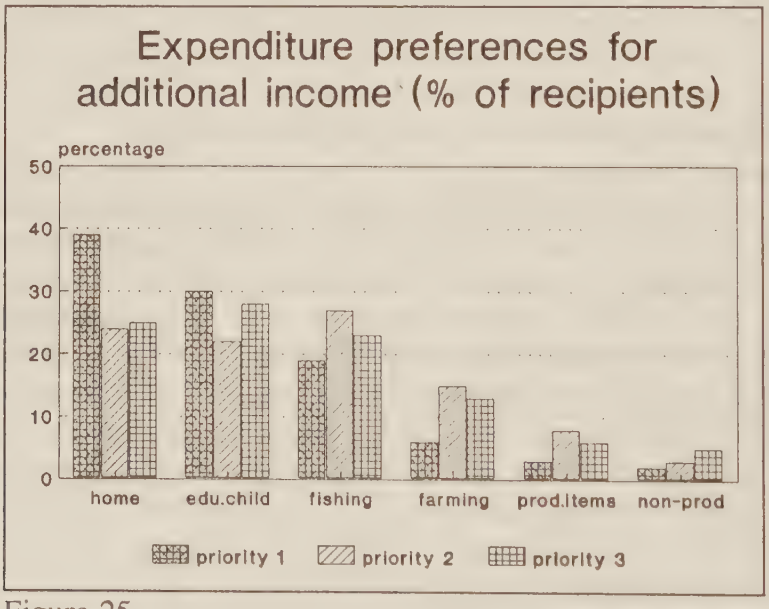


Figure 25

## 9.4 Appreciation of project assistance

The respondents heard about the project through village officials and fisheries extensionists (see Figure 26). Other sources of information were friends and relatives. Of the non-recipients, 24 percent had never heard of the project and 30 percent had heard of it through friends or relatives.

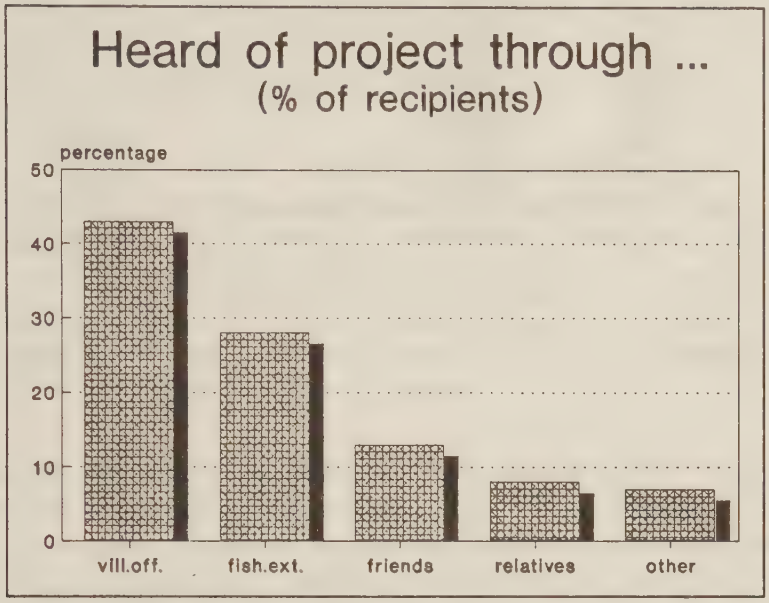


Figure 26

The respondents were asked to rate the project according to the scale given in the next figure. On the whole, the perception of the respondents on the project is very positive: 45 percent of the recipients and 15 percent of the non-recipients judged the project very useful, and 54 percent of the recipients and 62 percent of the non-recipients found it satisfactory. Reasons given for project appreciation by non-recipients were supply of spare parts, fisheries and non-fisheries extension work covering family planning, soil conservation, bookkeeping, fruit and fire wood tree planting, nutritional advice, etc. Only 1 percent of both groups thought the performance of the project poor.

Thirty-one percent of the recipients and 61 percent of the non-recipients offered no suggestions for improving the project.

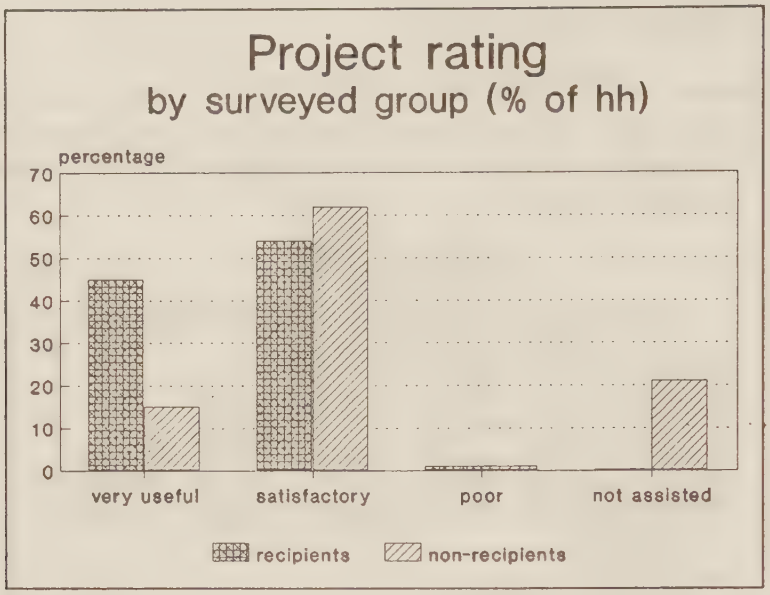


Figure 27

Suggestions for improvements included provision of complete packages (36 percent of the recipients and 4 percent of the non-recipients), more extension work and seminars (13 and 7 percent), increase in inputs for loans (14 and 23 percent), and other suggestions such as more spare parts, avoiding misuse by non-residents, long wait for approval of loans, and to focus on lesser-off people instead of on people that already have an asset base. These suggestions may be taken into account by the CRDB when proceeding with the project activities.

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**APPENDIX 1**

GCP/URT/066/NET

## IMPACT ASSESSMENT SURVEY

### HEAD OF HOUSEHOLD

Date: / /1993 Interviewer's Name:

A. Landing Place:
1. Stratum:
2. Name of the Village: Code:____/
3. Household Number: ____/
4. Receipt of Loan: Yes: ____/1 No:____/2

B. Household Head Identification:

1. He/She is a
| | |
|---|---|
| Fisherman | ____/1 |
| Fish Processor | ____/2 |
| Fish Trader | ____/3 |
| Farmer | ____/4 |
| Other | ____/5 |

2. Tribe: ..... Code: ____/

3. Religion: ..... Code: ____/

4. Place of Birth: .....

5. He/She is living in this village since ..... years.
where he/she was living before.....

6. Age ..... years

7. Married: ____/1 Single: ____/2 Widow(er): __/3
Separated: ____/4 Divorced: ____/5

8. If male, how many wives: ...../
If female, put 99

9. How many household residents: ...../

10. How many children dependents: ...../

11. Number of household residents working with fisheries:
Male: ...../
Female: ...../

12. How many children born after 04/1990: ...../

13. He/she's education:

None: ___/1
Primary 1-4: ___/2
Primary 5-7: ___/3
Sec. Ed.: ___/4
Higher Ed.: ___/5
Koranic: ___/6
Other: ___/7 Specify : .....

C. Principal and Secondary Occupation:

1. According to income generated, which is his principal occupation, his secondary occupation?
Fisherman: ___/1 Trader: ___/3
Fish Processor: ___/2 Farmer: ___/4
Other: ___/5 Specify:.....

2. If the occupation is seasonal, indicate during which months. If not seasonal, place 99 ...../...../
Principal: _____
J/F/M/A/M/J/J/A/S/O/N/D
Secondary: _____

3. Any other contributors in the household?
Yes: ___/1 No: ___/2

| Who: | | | work | | |
|---|---|---|---|---|---|
| | spouse | ___/1 | | Farmer | ___/1 |
| | sibling | ___/2 | | Fisherman | ___/2 |
| | children | ___/3 | | Fish Proc. | ___/3 |
| | ext.family | ___/4 | | Fish Trader | ___/4 |
| | Other | ___/5 | | Trader | ___/5 |
| | | | | Other | ___/6 |

D. Housing Conditions:

1. Walls are:
Mud ___/1
Wattle + Mud ___/2
Wat. + Cement ___/3
Cement ___/4
Burnt Bricks ___/5
Other ___/6

2. Roof is:
Grass ___/1
Courage Sheets ___/2
Other ___/3

3. Floor is:
Rammed Earth ___/1
Cement ___/2

4. House is equipped with:
   A. Windows : Yes ___/1 No ___/2
   B. Pit Latrine : Yes ___/1 No ___/2
   C. Hinged Doors: Yes ___/1 No ___/2

E. Migration:

1. Are there household members not born in this village, not including respondent?
   Yes: ___/1 No ___/2

   Spouse: ___/1
   Children: ___/2
   Extended Family: ___/3
   Other: ___/4

2. Does the household have a second home elsewhere?
   Yes: ___/1 No ___/2
   Specify where : .....
   .....
   .....

3. Does any member live/stay at a different place, during certain months of the year?
   Yes: ___/1 No ___/2

| Who: | | | Why: | | |
|---|---|---|---|---|---|
| | Self | ___/1 | | Farming | ___/1 |
| | Spouse | ___/2 | | Business | ___/2 |
| | Children | ___/3 | | Family Affairs | ___/3 |
| | Ext.Family | ___/4 | | School | ___/4 |
| | Other | ___/5 | | Other | ___/5 |

F. Fishing Assets Information:

| | Type/1 | Owner/2 | Financed/3 |
|---|---|---|---|
| A: | _____/ | _____/ | _____/ |
| B: | _____/ | _____/ | _____/ |
| C: | _____/ | _____/ | _____/ |
| D: | _____/ | _____/ | _____/ |
| E: | _____/ | _____/ | _____/ |
| F: | _____/ | _____/ | _____/ |

| TYPE/1 | OWNER/2 | FINANCED/3 |
|---|---|---|
| PC: Planked canoe | MH:Male-Husband | S:Savings |
| DC: Dugout canoe | MS:Male-Single or | B:Borrowed |
| CT: Catamaran | Adult Child | L:Loan from Project or Bank |

OB: OB Engine
LN: Lift Nets
GN: Gill Nets
SN: Scoop Nets
BS:Beach Seine
HL:Hand lines
FR:Fish Racks
BX:Fish Box
AS:Other fish assets
PL:Pressure Latern

FW:Female-Wife
FT:Female-Widow
FD:Female-Divorced
FS:Female-Single No Children
SM:Single Mother
JT:Joint Ownership

I:Inherited

## G. FARMING AND BREEDING ACTIVITIES

1. A. Numbers of fields in household : _____/
   B. Total surface of the fields: _____/Acres
   (in best estimation)
   C. Who owns the fields?

| | |
|---|---|
| Husband | ____/1 |
| Wife | ____/2 |
| Joint | ____/3 |
| Other | ____/4 |

2. Indicate 3 main cultures (according to income)

| Crop | Kg/Yr Harvested | Kg sold |
|---|---|---|
| _____/ | _____/ | _____/1 |
| _____/ | _____/ | _____/2 |
| _____/ | _____/ | _____/3 |

3. The household keeps which kinds of animals?
   (Indicate number by best estimate)

| | | |
|---|---|---|
| A. | Cattle | ____/ |
| B. | Goat | ____/ |
| C. | Sheep | ____/ |
| D. | Poultry | ____/ |
| E. | Other | ____/ |

4. The owner of these animals is:

| | |
|---|---|
| Husband | ____/1 |
| Wife | ____/2 |
| Joint | ____/3 |
| Other | ____/4 |

H. OWNERSHIP OF OTHER PRODUCTION ASSETS

| | TYPE/1 | OWNER/2 | FINANCED/3 |
|---|---|---|---|
| A. | _____/ | _____/ | _____/ |
| B. | _____/ | _____/ | _____/ |
| C. | _____/ | _____/ | _____/ |
| D. | _____/ | _____/ | _____/ |

TYPE/1

RT: Restaurant
DK: Duka
GH: Guest House
WT: Water Taxi
PO: Palm Oil extractor
SM: Sewing machine
FH: Flates or house for renting out
GM: Grinding Mill
BC: Bicycle
OT: Other - Specify

I. OWNERSHIP OF NON-PRODUCTIVE ASSETS

| Types | | TYPE/1 | OWNER/2 | FINANCED/3 |
|---|---|---|---|---|
| TR: Transistor Radio | A. | _____/ | _____/ | _____/ |
| RC: Radio cass | | | | |
| TA: Tables | B. | _____/ | _____/ | _____/ |
| CH: Chairs | | | | |
| CS: Cushions | C. | _____/ | _____/ | _____/ |
| MS: Mosquito Net | | | | |
| BD: Mattress | D. | _____/ | _____/ | _____/ |
| OT: Other-Specify | | | | |

J. DECISION MAKING

| | Issues |
|---|---|
| _____/A | Home Construction |
| _____/B | Purchase of Furnishings |
| _____/C | Purchase of small household items |
| _____/D | Sending Children to School |
| _____/E | Medical treatment |
| _____/F | Celebration |
| _____/G | Purchase of Production Asset |
| _____/H | Selection of Spouse for child |

Household member type

01 Husband
02 Wife
03 Joint
04 Other

K. TASK ASSIGNMENT

| | Types |
|---|---|
| _____/A Cooking | 01 Husband |
| _____/B Firewood Collection | 02 Wife |
| _____/C Shopping | 03 Male Youth |
| _____/D Washing of clothes | 04 Female Youth |
| _____/E Cleaning | 05 Elders |
| _____/F Child Care | 06 Children |
| _____/G House Repair | 07 Joint |
| _____/H Gardening around home | 08 Hired worker |
| _____/J Water Collection | 09 Other |
| _____/K Family Budgeting | |

L. ASSISTANCE FROM PROJECT

1. Did any household member try to obtained a loan from the project?
   Yes _____/1 No _____/2 if no skip to #7

2. What was the loan request for:
   OB Engine _____/1 Nets _____/2
   Fish Racks _____/3 Cash _____/4 Other _____/5

3. Was loan approved?
   Yes _____/1 No _____/2 if no skip to # 7

4. Any training or technical assistance provided by the project, in addition to the loan.
   Yes _____/1 No _____/2
   Specify .....

5. Could the item supplied on credit be used as intended?
   Yes _____/1 No _____/2
   Specify why.....

6. Stemming from the loan, has there been an increase in monthly income?
   Yes _____/1 No _____/2 Don't know _____/3
   Reasons?.....
   .....
   Tsh/month _____ additionally

7. Used or likely to use additional income for:
(rank in order of priority, minimum of 3)

_____/ A. Consumer goods
_____/ B. Education for child
_____/ C. Buy animals
_____/ D. Take additional wife
_____/ E. Invest in farming
_____/ F. Invest in fishing
_____/ G. Build home
_____/ H. Improve home
_____/ I. Bicycle
_____/ J. Radio cassette
_____/ K. Other Specify .....

8. A side from the loans, do you see any long term benefits from the assistance you received from the project?
Yes _____/1 No _____/2
Specify.....

9. Did any household member receive assistance from the project other than a loan or related training?
Yes _____/1 No _____/2
Specify.....

10. If not direct assistance, other benefits such as:

A. - purchase of fruit tree seedings
Yes _____/1 No _____/2

B. - purchase of spare parts
Yes _____/1 No _____/2

C. - other : .....
Yes _____/1 No _____/2

11. You found the project assistance:
Very useful _____/1 Satisfactory _____/2
Poor _____/3 Was not assisted _____/4

12. Suggestions for efficiency
.....
.....
.....
.....
.....
.....

M. LENDING PROCEDURE

1. Heard about the FAO/CRDB credit scheme from?
   Relatives _____/1 Friends _____/2
   Fishery Extension _____/3 Village Office _____/4
   Others _____/5

2. You applied for the loan when? _____/

3. How long after loan approval, did you receive the approved loan item?
   3-4 months _____/1 4 - 5 months _____/2
   6 months _____/3 5 -11 months _____/4
   1 year _____/5

4. Difficulties in obtaining craft, Engine or gear
   Yes _____/1 No _____/2 Received Cash Loan _____/3
   Go to 5
   Specify difficulty .....
   Did this effect your first installment?
   Yes _____/1 No _____/2

5. Did the fishing season you received your approved item in, affect your first instalment?
   Yes _____/1 No _____/2

6. If you had to provide equity, how did you finance it?
   Savings _____/1 Other Sources _____/2
   No equity needed _____/3

7. How often have you made instalments?
   Every month _____/1 Every 1/4 year _____/2
   Twice a year _____/3 Once a year _____/4
   Instalment not yet made ...../5

8. For instalment payment, during low season you
   use savings _____/1 Borrow _____/2
   Don't pay _____/3 Other Income _____/4

9. A. Have you received written reminders?
   Yes _____/1 No _____/2

   B. Received visits from bank officials?
   Yes _____/1 No _____/2

   C. Any legal action/repossession?
   Yes _____/1 No _____/2

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## IMPACT ASSESSMENT SURVEY

WOMEN'S SECTION

Date: / /1993 Interviewer's Name: _____

A. LANDING PLACE

1. Stratum:
2. Name of the village: Code: _____/
3. Household/survey #: _____/

B. FEMALE/MEMBER IDENTIFICATION

Name:

1. Age: _____/
2. The above named, relationship to head of household:

| | | | |
|---|---|---|---|
| Wife | _____/1 | Sister in law | _____/5 |
| Daughter | _____/2 | Grand daughter | _____/6 |
| Daughter in law | _____/3 | Head of household | _____/7 |
| Sister | _____/4 | Other | _____/8 |
| | | Specify: ..... | |

3. Tribe : ..... Code: _____/
4. Religion: ..... Code: _____/
5. Education:

| | | | |
|---|---|---|---|
| No Education | _____/1 | Sec. Educ. | _____/1 |
| Primary 1 - 4 | _____/2 | Koranic School | _____/2 |
| Primary 5 - 7 | _____/3 | Other | _____/3 |
| | | Specify..... | |

C. CHILD BIRTH BACKGROUND/FERTILITY ESTIMATE

1. How many time conceived ? _____/
2. How many children alive do you have? _____/
3. How many pregnancies aborted ? _____/
4. How many children born alive? _____/
5. How many children died? _____/
6. Children died:

| Age at death | Season | Cause of death |
|---|---|---|
| _____/ | _____/ | _____/ |
| _____/ | _____/ | _____/ |
| _____/ | _____/ | _____/ |

## D. FAMILY PLANNING

1. Do you use any family planning?
   A. Yes _____/1 No _____/2 - Next question 2
   B. Specify:

| | | |
|---|---|---|
| | Natural Methods | _____/1 |
| | Separation from husband for a time | _____/2 |
| | Pills | _____/3 |
| | Condom | _____/4 |
| | Counting days | _____/5 |
| | Withdraw | _____/6 |
| ..... | Sterilization | _____/7 |
| Specify sex | Others | _____/8 |
| | Specify ..... | |

   C. When you first tried something or used a Birth Control Method, how many living children did you have at that time? _____/

   D. Are you currently doing something or using any method to delay or prevent pregnancy?
   Yes _____/1 No _____/2

2. Do you intend to use a method to delay or avoid pregnancy at any time in the future?
   Yes _____/1 No _____/2
   Specify reason:
   - Wants children _____/1
   - Costs _____/2
   - Side Effects _____/3
   - Partner Opposed _____/4
   - Religion _____/5
   - Difficult to get _____/6
   - Inconvenient _____/7
   - Other _____/8 Specify .....

3. Are Birth Control Methods available at the Mother/Child clinic?
   Yes _____/1 No _____/2

4. Are you pregnant now?
   Yes _____/1 No _____/2
   How many months? _____/

## E. BREAST FEEDING AND EATING HABITS

1. In general, at what age have your children started taking food other than mothers milk? _____/months

2. In general, for how many months do your breast feed? _____/months

3. In general, after how many months did you start giving the following on a regular basis?

| | | | |
|---|---|---|---|
| A. | Plain Water | _____/age in months | _____/not given |
| B. | Other liquids | _____/age in months | _____/not given |
| C. | Porridge | _____/age in months | _____/not given |
| D. | Solid or Mushy food | _____/age in months | _____/not given |

4. How many meals did the family eat yesterday? _____/number of meals

5. What was eaten and drunk yesterday by small child (under 4 years) who are not breastfed ?
   Morning .....
   In Between .....
   Midday .....
   In Between .....
   Evening .....

6. Frequently used condiments/stew which is eaten with staple food: .....

7. How many times per week do you eat fish or meat? _____/times

8. How many times per week do you serve a vegetable side dish? _____/times

## F. DECISION MAKING

ISSUES:

A. _____/ Home Construction
B. _____/ Purchase of Furnishings
C. _____/ Purchase of small household items
D. _____/ Sending Children to School
E. _____/ Medical treatment
F. _____/ Celebration of festival
G. _____/ Purchase of production assets
H. _____/ Selection of spouse for child
I. _____/ Family Planning

Household member type

01 Husband
02 Wife
03 Joint
04 Other

G. TASK ASSIGNMENT

| | |
|---|---|
| _____/A Cooking | 01 Husband |
| _____/B Firewood Collection | 02 Wife |
| _____/C Shopping | 03 Male Youth |
| _____/D Washing of clothes | 04 Female Youth |
| _____/E Cleaning | 05 Elders |
| _____/F Child Care | 06 Children |
| _____/G House Repair | 07 Joint |
| _____/H Gardening around home | 08 Hired worker |
| _____/J Water Collection | 09 Other |
| _____/K Family Budgeting | |

H. CULTIVATION RECORD

| 1. Major Food Crops | Amount Harvested | Sold |
|---|---|---|
| A. Maize | _____/ | _____/ |
| B. Beans | _____/ | _____/ |
| C. Cassava | _____/ | _____/ |
| D. Bananas | _____/ | _____/ |
| E. Potatoes | _____/ | _____/ |
| F. Rice | _____/ | _____/ |
| G. Millet | _____/ | _____/ |
| H. Others that are solid | _____/ | _____/ |

2. Who cultivates the Trade crops?

| | |
|---|---|
| Husband | _____/1 |
| Wife | _____/2 |
| Mother and Children | _____/3 |
| Joint | _____/4 |
| Other | _____/5 |

Specify .....

3. Who owns the earnings?

| | |
|---|---|
| Husband | _____/1 |
| Wife | _____/2 |
| Children | _____/3 |
| Joint | _____/4 |
| Other | _____/5 |

Specify .....

I. OTHER FOOD ISSUED

1. Is the food enough until next season?

Yes _____/1 No _____/2 Don't know _____/3

2. If no, you hope to get from where?

| | | | |
|---|---|---|---|
| Buy | _____/1 | Help from others | _____/2 |
| Other means | _____/3 | Don't know | _____/4 |

3. Explain meal time arrangement?

| | |
|---|---|
| Everyone together | _____/1 |
| Men separate/Women with children | _____/2 |
| Father alone/Rest together | _____/3 |
| Adults separate/Children | _____/4 |
| Other | _____/5 |

Specify .....

4. What kind of energy source do you cook with?

| | |
|---|---|
| Kerosine | _____/1 |
| Wood | _____/2 |
| Charcoal | _____/3 |
| Wood + Charcoal | _____/4 |
| Other | _____/5 |

Specify .....

B. If firewood or charcoal which type of stove?

| | |
|---|---|
| 3 stones | _____/1 |
| Stove | _____/2 |
| Improved Stove | _____/3 |
| Other | _____/4 |

Specify .....

USE ONLY FOR CHILDREN FROM 3 - 36 MONTH/BORN AFTER 04/1990

GCP/URT/066/NET

## IMPACT ASSESSMENT SURVEY

### WEIGHT, HEIGHT AND VACCINATION RECORD SURVEY

Date: __/__/1993 Interviewer's Name: _____

1. Name of Mother : .....

2. Household Survey #: _____/

---

| | 1st Youngest Child | 2nd Youngest Child | 3nd Youngest Child |
|---|---|---|---|
| Sex | _____/ | _____/ | _____/ |
| D.O.B. | _____/ | _____/ | _____/ |
| Wt (in kg) | _____/ | _____/ | _____/ |
| Ht (in cm) | _____/ | _____/ | _____/ |

There is a clinic card for the child?

| | | |
|---|---|---|
| Yes _____/1 | Yes _____/1 | Yes _____/1 |
| No _____/2 | No _____/2 | No _____/2 |
| Specify Why | Specify Why | Specify Why |
| Lost ____/1 | Lost ____/1 | Lost ____/1 |
| Never Receiv.___/2 | Never Receiv.___/2 | Never Receiv.___/2 |

Copy Vaccination Dates:

| | Mo/Yr | Mo/Yr | Mo/Yr |
|---|---|---|---|
| BCG | __/__ | __/__ | __/__ |
| DPT 1 | __/__ | __/__ | __/__ |
| DPT 2 | __/__ | __/__ | __/__ |
| DPT 3 | __/__ | __/__ | __/__ |
| POLIO 1 | __/__ | __/__ | __/__ |
| POLIO 2 | __/__ | __/__ | __/__ |
| POLIO 3 | __/__ | __/__ | __/__ |
| MEASLES | __/__ | __/__ | __/__ |

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